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To: National Council on the Handicapped

From: Robert L. Burgdorf Jr., Attorney/Research Specialist RLB

Subject: Cost Data Regarding the Americans with Disabilities Act

At the May, 1988, quarterly meeting of the Council, Dr. Lenkowsky and other Council members indicated their desire to have more information about the costs and benefits associated with the Americans with Disabilities Act. This memorandum responds to that request. There was also discussion at the May meeting of the possibility of the Council obtaining the services of an economist to locate and develop cost data. In the absence of such assistance, I have pulled together the data included here on my own.

The available data are certainly far from comprehensive. At the time that the original HEW Section 504 regulations were being considered in 1976, the Office for Civil Rights of the Department of Health, Education, and Welfare commissioned the Public Research Institute of Arlington, Virginia to compile a detailed report on the costs and benefits of the proposed regulations. That report, "Discrimination Against Handicapped Persons: The Costs, Benefits and Inflationary Impact of Implementing Section 504 of the Rehabilitation Act of 1973 Covering Recipients of HEW Financial Assistance" presented a great quantity of statistical information, charts, tables, and

projections regarding the financial implications of the nondiscrimination requirements. To date, that report continues to be one of the most comprehensive reviews of costs and benefits of provisions prohibiting discrimination against persons with disabilities. A copy of that report is attached as Exhibit One of this memorandum.

No comparable study of the costs and benefits of the Americans with Disabilities Act has been conducted. Apart from the HEW Section 504 report, the available data that I have been able to identify are much more piecemeal and sketchy. One of the broadest compilations of such information is the section on "The Costs and Benefits of Full Participation" that I wrote for the U.S. Commission on Civil Rights, and which is included in its report, Accommodating the Spectrum of Individual Abilities. A copy of that section is attached as Exhibit Two.

Costs and benefits data that influenced the Council's deliberations in developing the recommendations in Toward Independence are presented in that report and in the detailed topic papers included in the Appendix to Toward Independence. Other pertinent facts and figures were presented in the Council's 1988 report, On the Threshold of Independence.

Most other sources of fiscal data about discrimination are much narrower in focus, tending to deal with a single topic, such as bus transportation or costs of adaptability in new housing construction. Before describing some such data sources, some general observations are in order.

I. GENERALLY

As existing data are reviewed or compiled, and as studies of the costs of nondiscrimination requirements are conducted in the future, some guiding principles should be borne in mind:

A. There is great danger of that cost estimates of nondiscrimination requirements will be inflated.

The imposition of nondiscrimination requirements protecting persons with disabilities may be associated with unrealistic, inflated estimates of their costs, particularly when such cost estimates are based upon data developed by an affected industry. Such overestimates of costs were a problem that arose when the Section 504 regulations were promulgated. In his book, From Goodwill to Civil Rights, about the history of section 504, Richard Scotch observed that some of the agencies to be covered by the regulations "provided extremely high cost estimates ... and then complained that they could not meet the cost of compliance" (Id. at p. 118).

In his floor statement upon the introduction of the ADA, Congressman Tony Coelho noted :

> In the past, concerns about cost have been raised as an obstacle to our addressing this problem. Estimates of these costs are inflated. For example, when the implications of section 504 were debated, universities and hospitals claimed that nondiscrimination was absolutely beyond their financial means. We have now had regulations implementing section 504 over 10 years. During that time, these institutions have not complained of financial difficulties due to accommodating the disabled.

Such inflations of cost figures under section 504 were a problem not only with the universities and hospitals as mentioned by Representative Coelho, but were encountered in regard to other areas to which section 504 applies, including the public transit industry. Some cost estimates supplied by public transportation agencies in the late 1970s and early 80s regarding the expenses involved in providing accessible transportation under section 504 were quite high, with the result that there was a vociferous debate involving the transportation industry, the U.S. Department of Transportation, the Congressional Budget Office, and various disability activists about the actual costs of providing accessible transportation. This debate is described on pp. 79-80 of Exhibit Two.

Sometimes exaggerations of costs of nondiscrimination requirements result from misguided fears and lack of knowledge about practical options for accommodating the needs of persons with disabilities. In introducing the Americans with Disabilities Act, Senator Weicker noted that "experience suggests that the costs of modifications are usually much less than might be feared by those unfamiliar with the issues." Such lack of familiarity can result from a limited knowledge of the abilities and limitations of persons with disabilities, from a lack of awareness of devices and technology that are available, or from an insufficient understanding of the nondiscrimination requirements themselves. In introducing the ADA, Senator Weicker went to some length to explain the accessibility

requirements of the bill in concrete terms to allay the likelihood of these requirements being misunderstood and inflated. But such dangers make it essential to carefully scrutinize cost data associated with eliminating discrimination against persons with disabilities to assure that they are not exaggerated.

B. In Calculating the Costs Entailed by the Requirements of the Americans With Disabilities Act, Expenses Associated with Existing Federal, State, and Local Requirements Should Be Deducted.

An important element in developing a realistic estimate of the cost implications of the ADA is to attribute to the requirements of the bill the costs of only those new or additional changes and modifications it entails. From the costs of full compliance with the requirements of ADA should be subtracted the costs of accommodations and barrier removal already required under existing laws, ordinances, building codes, and regulations. For example, an accurate determination of the costs of making State and local public buildings accessible to the extent required by the ADA must take into account that many such buildings were constructed with Federal financial assistance; consequently, such buildings are already required to meet accessibility requirements under Section 504 and nondiscrimination provisions associated with Federal block grants programs and other particular Federal funding programs.

Likewise, such buildings may be subject to State and local building codes and antidiscrimination requirements. The costs of what is already required should be subtracted from the estimated expenses of full compliance with the requirements of the ADA.

Similarly, estimates of the costs of eliminating discrimination by employers and by public accommodations must take into account that most States and many localities already have laws and ordinances that prohibit such discrimination. Moreover, some employers and places of public accommodation may already be subject to nondiscrimination requirements under Sections 503 or 504 if they have received Federal grants or Federal contracts. Similarly, housing providers, transportation companies, and communications agencies subject to the ADA may already be covered by a variety of Federal, State, and local requirements that prohibit discrimination or establish accessibility standards.

Each of the 50 States and the District of Columbia has one or more laws prohibiting discrimination on the basis of handicap in employment, public accommodations, or housing. The overwhelming majority have some State law requirements in each of those three areas. Most also have provisions in their State laws establishing architectural accessibility requirements. "A Survey of State Laws," along with some more detailed and updated information about such laws and building codes, are attached as Exhibit Three.

To accurately estimate the financial impact of the ADA, estimates of the costs of full compliance with its requirements should be reduced by subtracting any costs associated with complying with State and local measures mandating nondiscrimination or establishing accessibility standards. And the estimates of ADA compliance should also exclude those requirements already established under other Federal laws, including Sections 502, 503, and 504 of the Rehabilitation Act of 1973, the Architectural Barriers Act of 1968. A listing of "Handicap Civil Rights Statutes" from the U.S. Commission on Civil Rights report, Accommodating the Spectrum of Individual Abilities, is attached as Exhibit Four. In short, costs should be attributed to the ADA only for new requirements it imposes over and above those currently mandated.

II. INTRODUCTORY STATEMENTS REGARDING THE ADA

Some discussion of costs and benefits appeared in the floor statements of sponsors of the ADA at the time of its introduction in the Senate and house of Representatives. Most notable were remarks by Senator Lowell Weicker and Representatives Tony Coelho and Major Owens. In his introductory statement, Senator Weicker, the ranking minority member and former chairman of the Senate Subcommittee on the Handicapped, declared:

> Some may fear that the bill will create requirements that are unrealistically expensive. There are several answers to questions about costs. First, it must be asked: How much is too much to pay for equality? Can we establish an acceptable price tag for civil rights? Second, experience suggests that the costs of modifications are usually much less than might be feared by those unfamiliar with the issues. Wider doorways and ramps are not particularly expensive, and even modifications to bathrooms and lifts can be secured at relatively modest prices. And many communication devices are quite reasonable in cost. A telecommunications device for the deaf (TDD), which enables deaf people to use the telephone, can be purchased for about $150.
>
> As we consider costs, it is important to bear in mind that the Federal Tax Code permits businesses to take an annual deduction of up to $35,000 for expenditures entailed in removing barriers to people with disabilities.
>
> A Harris poll of employers found that three out of four managers interviewed believed the average costs of hiring a person with a disability to be about the same as that of employing a nondisabled person. A 1982 study by the Department of Labor concluded that accommodating for disabilities is "no big deal." This confirms the experiences of major U.S. corporations, such as du Pont, which report that workplace accommodations frequently cost little or nothing.
>
> Likewise, the expense associated with accessibility features for new housing are relatively small. Estimates are that, at most, such requirements would entail less than 1 percent of construction costs. Officers of the National Association of Home Builders have declared that they can build in such features at very little cost. And such costs are expected to decline even further once they become uniform within the housing industry.
>
> The requirements regarding accessibility of new vehicles and rolling stock of transportation agencies are not extravagant. Often the issue resolves itself into a question of purchasing slightly fewer accessible vehicles versus a slightly greater number of inaccessible ones. Taking buses as an example, although costs can vary, a lift on a new bus currently costs about 6 to 9 percent of the total price tag. Thus, for the same outlay, a company can either purchase ten accessible buses or 11 buses without lifts.
>
> Perhaps the most difficult and costly modifications contemplated are those associated with existing stations and platforms of mass transit systems.

But I would reiterate that the bill does allow these changes, and consequently their costs, to be spread over a period of up to 10 years. The act does not naively demand full access immediately, but gives transit systems the opportunity to plan for and spread out the refurbishment and capital expenditures necessary to achieve accessibility. And again, the limitations section of the bill prevents the requirement of modifications on a timetable that would threaten the existence of any transportation operator.

In short, the costs associated with this bill are a small price to pay for opening up our society to persons with disabilities. Indeed, the costs to this Nation of discrimination against persons with disabilities are staggering. Over $60 billion of our annual Federal budget are spent on disability-related programs. Disability is second only to defense as the largest category of Federal budget expenditures. And 95 percent of what we spend on disability goes to maintaining people in dependent situations. All taxpayers are underwriting the inactivity and waste of resources of people with disabilities who are not permitted the opportunity to be employed and self-sufficient. The costs to our society of discrimination—in economic as well as humanitarian terms—are much greater than the costs of eliminating such discrimination.

In part of his introductory remarks, Congressman Coelho, Majority Whip in the House of Representatives, declared:

In the past, concerns about cost have been raised as an obstacle to our addressing this problem. Estimates of these costs are inflated. For example, when the implications of section 504 of the Rehabilitation Act of 1973 were debated, universities and hospitals claimed that nondiscrimination was absolutely beyond their financial means. We have now had regulations implementing section 504 over 10 years. During that time, these institutions have not complained of financial difficulties due to accommodating the disabled.

I believe we will find that in the long run, ending discrimination will actualy lower costs to our society as a whole. Maintaining discrimination is expensive because discriminatory barriers keep people out of work, lowers our gross national product and our tax revenue and what's more, swell benefits payments. Government studies have estimated that eliminating employment discrimination in even a narrow spectrum of jobs would add $58 million to annual Government revenues. A Department of Transportation study indicated that with accessible transportation, SSI benefit savings due to increase employment would account for $276 million a year. Statistics indicated that funds generated by eliminating handicap discrimination would return more than $3 for every $1 spent. We as a nation stand to cash in quite a bit on the integration, and subsequent enhanced productivity, of people with disabilities.

And Representative Owens, Chairman of the Subcommittee on Select Education, observed:

The very existence of an architectural barrier—steps—or a transportation barrier—the lack of a lift—constitutes discrimination.

Not that removal of such barriers has to be costly. For example, the Americans With Disabilities Act proposes to make the most reachable units of new apartment complexes to incorporate basic universal features of adaptable design—this means that they can be easily modified to be barrier-free. And the cost? As little as $500 per new apartment constructed, and often less. The act also proposes that new public accommodations be barrier-free—at a cost of less than ½ of 1 percent of the construction cost. And a lift on a new bus? As little as 5 percent of the bus cost, or even less. Not to mention the savings we'll realize from decreased benefit support costs, as employment barriers fall and disabled people recover their innate productive capacity.

III. COSTS RELATED TO TRANSPORTATION

The debates about the costs of accessibility in public transportation have been noted above. A major source of additional data became available in December of 1985, when the U.S. Department of Transportation published its "Final Regulatory Impact Analysis" for its Section 504 regulation applicable to urban mass transit programs. This analysis was revised in a final form in May of 1986. While the regulatory impact analysis has not been without criticism, it does provide a huge quantity of new statistical information about the expenses associated with accessible urban mass transportation. These include cost figures for fixed-route-accessibility, paratransit systems, and user-subsidies for taxis and other services. It presents cost data derived from certain transit systems selected by the Department of Transportation as case study systems. It also presents a comparison of cost estimates for accessible transportation in large, medium, and small cities.

While the data are complex and detailed, one of the major conclusions of the DOT study was that most urban transit systems can be made accessible for less than 3 percent of their annual operating costs. A copy of the revised Regulatory Impact Analysis issued in May of 1986 is enclosed as Exhibit Five.

In his introductory statement on the ADA, Representative Tony Coelho made the following comment regarding data on the

potential benefits of accessible transportation:

> A Department of Transportation study indicated that with accessible transportation, SSI benefit savings due to increased employment would account for $276 million a year. Statistics indicated that funds generated by eliminating handicap discrimination would return more than $3 for every $1 spent. We as a nation stand to cash in quite a bit on the integration, and subsequent enhanced productivity, of people with disabilities.

In accord, Representative Major Owens noted that the expenses associated with lifts on buses are "as little as 5 percent of the bus cost, or even less. Not to mention the savings we'll realize from decreased benefit support costs ..."

In the Senate, Senator Kerry voiced similar sentiments:

> Today the technology exists to fashion the existing transit systems with appropriate lifts and seating to accommodate those who need it. Trains and buses, particularly newly purchased models, are easily equipped. Many States and cities are already adopting the policies that are put forth in this legislation. As new buses and trains are purchased they are equipped with lifts. The added costs are relatively small in comparison to the actual gains that are made through employment and, more importantly, through independence.

IV. COSTS RELATED TO HOUSING

The most comprehensive compilation of data concerning the costs and benefits of eliminating discrimination in housing of which we are aware continues to be the material collected in the section on "Costs and Benefits" in the Housing topic paper of the Appendix to Toward Independence. A copy of that section is enclosed as Exhibit Six.

Much of the discussion regarding costs of accessible housing has come to center on the "universal features of adaptable housing" advocated by the Council in Toward Independence. Such an approach to accessibility has been incorporated in the Fair Housing Amendments Act bills and in the Americans with Disabilities Act. In 1987, the Department of Housing and Urban Development issued a report titled Adaptable Housing: Marketing Accessible Housing for Everyone. The report examines the advantages of the adaptable housing approach over prior attempts to establish a certain percentage of completely accessible units. The report concludes that the universal features of adaptability approach is much more effective and beneficial. As to the costs of such adaptability, the report declares that "With increased experience with the adaptable housing concept and growing participation of product manufacturers and better market information, the building industry may find that most houses can be made accessible at little or no increase in cost." (Id. at p. 10)

A recent issue of Rehab Brief quoted architect Ron Mace and a GAO study regarding the costs of universal features of adaptable housing:

> Stories circulate about the thousands of dollars required to make buildings accessible. While this may be true of modifying older structures, it is not true when accessibility is part of the original design. Mace has been quoted as saying the cost can be "zero"; a report from the U.S. Government Accounting Office puts the costs at "only about one half of one percent."

("Design for the Life Span of All People? Spotlight on Adaptable Housing," Rehab Brief Vol. X, No. 12, p. 2)

The housing and architecture professions are becoming increasingly aware of and accepting of the notion of universal features of adaptable design. A January 1987 article in Architecture recognized that "there will probably be, in the near future, uniform design standards for accessibility in this country." In an April, 1988, article in the New York Times, the Vice President of the National Association of Home Builders (NAHB), Shirley McVay Wiseman, was quoted as stating, "We want to demonstrate that we can build in adaptability at very little cost." NAHB has become a strong supporter of the universal features of adaptive design as incorporated in the Fair Housing Act Amendments bill. In a letter to Congressional leaders considering the bills, NAHB described these provisions as assuring "equal opportunity in housing for handicapped individuals, while minimizing both construction costs and potential issues of marketability." The home builders also specifically opposed an amendment that would have substituted a requirement of 10 percent fully accessible units for the

universal adaptability approach in the bill, saying that the former would "result in a higher and more costly standard." A copy of the NAHB letter is enclosed as Exhibit Seven.

Members of Congress quoted some estimates regarding the costs and benefits of housing adaptability requirements during their introductory remarks in regard to the ADA. Representative Owens stated:

> The very existence of an architectural barrier ... constitutes discrimination.
>
> Not that removal of such barriers has to be costly. For example, the Americans with Disabilities Act proposes to make the most reachable units of new apartment complexes incorporate basic universal features of adaptable design -- this means that they can be easily modified to be barrier-free. And the cost? As little as $500 per new apartment constructed, and often less.

Representative Coelho declared:

> Adaptive design also makes tremendous economic sense. A new adaptable apartment has been shown to cost only about $500 more to build than one without adaptability features. This compares with renovation at a later date which, if it is even possible, can cost as much as $15,000. Moreover, institutionalization, which is a never-ending expense, is vastly more costly, between $40,000 and $75,000 a year.

In his introductory statement regarding the ADA in the Senate, Senator Kennedy quoted the identical statistics regarding the costs of adaptable housing.

V. COSTS IN OTHER AREAS

Apart from the foregoing, available information concerning the costs and benefits associated with eliminating discrimination against people with disabilities as required under the ADA is sketchy. Some useful bits and pieces are available, but no comprehensive and authoritative studies are available on various particular issues.

In regard to the costs of eliminating discrimination in regard to public accommodations, some limited cost estimates are available. In his floor statement upon the introduction of the ADA, Representative Major Owens declared: "The act also proposes that new public accommodations be barrier free -- at a cost of less than 1/2 of 1 percent of the construction cost." This estimate is consistent with sources quoted in the Appendix to Toward Independence, which estimated that accessibility costs on a new facility range between one-tenth of one percent to one-half of one percent of total construction costs of a new building (Appendix, p. F-29).

In an article in Nation's Restaurant News, the following statements were made regarding the impact of ADA on restaurants, and the implications of Senator Weicker's statements regarding accessibility requirements:

> How much would it cost restaurants to comply with the new handicap legislation?
> According to Weicker, the expense of modifications is usually much less than might be feared by those unfamiliar with the issues.

"Wider doorways and ramps are not particularly expensive," he said, 'and even modifications to bathrooms and lifts can be secured at relatively modest prices."

Moreover, existing law allows food-service operators and other employers to tax deduct up to $35,000 annually toward the cost of removing architectural barriers to the disabled.

Consider, too, the fact that some of that spending is sure to be plowed back into the restaurant industry as dining out becomes more accessible to the 6 million people in the United States who are severely handicapped. For example, if only 10 percent of those individuals are encouraged to eat out once a month, that's another $100 million plus for the food-service industry.

Moreover, helping the disabled to become more self-sufficient would pay dividends for all of us at tax-time, according to the bill's backers.

At the federal level alone, we spend more than $60 billion a year on disability-related programs and according to Weicker, "95 percent of what we spend on disability goes to maintaining people in dependent situations."

"All taxpayers are underwriting the inactivity and waste of resources of people with with disabilities who are not permitted to be employed and self sufficient," Weicker told Congress.

(Ken Rankin, "New Legislation for Handicapped Draws Bipartisan Support," Nation's Restaurant News, May 30, 1988, p. F4)

A few limited cost estimates have been made in regard to the removal of communications barriers. In his opening statement on the ADA, Senator Weicker stated that "many communication devices are quite reasonable in cost. A telecommunications device for the deaf (TDD), which enables deaf people to use the telephone, can be purchased for about $150." Estimates of costs of captioning films and videotapes are usually less than 1 percent of producing the film or tape for a one-half-hour documentary (Subcommittee on Hearing Impaired Persons, Interagency Committee on Handicapped Research, Memorandum of May 15, 1986), and much less for longer products or high budget projects, such as Hollywood style movies.

We continue to pursue additional data on the costs of eliminating discrimination. States with antidiscrimination laws prohibiting discrimination on the basis of handicap would seem a likely source of information about the costs and benefits of such requirements, but little such information has been compiled and published. I have been in touch with Mr. Jud Boies, a State Architect for the State of California, which has one of the most extensive state statutory requirements regarding the removal of architectural barriers. Mr. Boies has promised to send me what cost information is available, but he indicated that very little has been collected or summarized in written form.

We will continue to seek further information. I hope that the data collected here is helpful.

EXHIBIT ONE

HEW SECTION 504 REGULATIONS

ANALYSIS OF COSTS, BENEFITS AND INFLATIONARY IMPACT

DISCRIMINATION AGAINST HANDICAPPED PERSONS
The Costs, Benefits and Inflationary Impact of Implementing Section 504 of the Rehabilitation Act of 1973 Covering Recipients of HEW Financial Assistance

Dave M. O'Neill

18 February 1976

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I. INTRODUCTION

The proposed regulation will implement section 504 of the Rehabilitation Act of 1973, as amended, which reads as follows:

> No otherwise qualified handicapped individual in the United States... shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.

Under HEW's guidelines any proposal which will have an impact exceeding $100 million in any one year is subject to the requirements of Executive Order 11821. Under the guidelines relating to Inflationary Impact Statements, any such regulation must be carefully evaluated in terms of benefits as well as costs. In addition alternatives to the proposed action must be reviewed.*

Preliminary analysis indicated the likelihood that the $100 million threshold would be crossed and an analysis required. The following analysis, although generally conforming to the stated guidelines, has some special features and limitations that should be made explicit at the outset.

Although the analysis attempts to measure cost impacts, it does not link them to effects on inflation. This regulation affects services provided primarily by the public sector, and the link between increased cost and inflationary pressure is not as direct as with regulations that increase unit costs in the private sector. For example, state and local governments may choose to cover the increased cost of special education by increasing tax revenues, or by reallocating available resources, thus precluding the inflationary pressure associated with deficit financing.

Another special feature is that some of the regulation's requirements duplicate the provisions of pre-existing federal or state law or court decree. In such instances, the effect of the section 504 regulation is to impose an additional sanction in order to hasten and to help enforce compliance. The policy decision in these cases is not whether to incur a set of costs and benefits, but whether or not to increase the rapidity with which they materialize. Thus where the regulations requirements duplicate or strengthen existing

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*OMB has stressed that the statement should document all significant costs and benefits even if they do not have any direct links to the prices of goods and services that enter into the Consumer or Wholesale Price Index. In these situations the Inflationary Impact Statement becomes equivalent to the more traditional cost/benefit analysis framework in which the focus is much broader than inflation impact -- all effects that impact on resource allocation efficiency and the distribution of income, if they are large enough, are documented and evaluated in terms of benefits and costs.

mandates, it will not be possible to distinguish separately the costs and benefits of 504 as opposed to existing regulations and laws. However some part of any projected increases in costs (and benefits) should be attributed to these other provisions. Indeed for some of the sub-parts perhaps even the major part should be attributed to them.

The analysis attempts, for each of the major subparts, to present data and information on the magnitude of identifiable costs and benefits. The material is presented in a way that will help the reader evaluate the validity and reliability of the estimates. Wherever possible, ranges of estimates are presented that represent extremes of assumptions about parameters (e.g., special education costs per pupil) that we cannot measure reliably. In some cases (e.g., employment discrimination) the available evidence on costs and benefits is very indirect and impressionistic while in others (e.g., facility accessibility), measurement is more precise.

In all cases the evidence on the magnitude of benefits is, at best, based on scattered data sources and studies. Some of the numbers presented are no more than reasoned guesses. Two remarks are in order here. First, the fact that certain kinds of benefits are difficult to measure (e.g., psychic benefits) does not make them any less important. Second, we have attempted, wherever possible, to identify sub-groups of recipients based on their neediness, e.g., severely and profoundly handicapped children vs. mildly handicapped. This will help the reader in striking his own balance on the magnitude of psychic benefits.

The evaluation is divided into six sections, five of which correspond to the subparts of the proposed regulation: Subpart B, Employment Practices; Subpart C, Program Accessibility; Subpart D, Elementary and Secondary Education; Subpart E, Higher Education; and Subpart F, Health and Social Services. A final section summarizes the findings of the analyses of the various subparts.

The conclusion of the analysis is that the benefits forthcoming (psychic as well as pecuniary) provide a substantial offset to the costs that will be incurred. The costs involved will not be as great as is widely thought and the compelling situation of some of the handicapped persons involved tips the balance in favor of proceeding with immediate implementation of the regulation.

The details of the regulation, such as wording of key phrases, precise extent of population coverage, etc, are discussed at various points in the analyses. The major issues are: alternative ways of wording the "reasonable accommodation" provision; determining the proper incidence rate for the handicapping condition. "Learning Disabled;" determining who should bear the non-educational costs associated with severely handicapped children who require a residential setting; and alternative timing and phase in strategies.

II. EMPLOYMENT PRACTICES (Subpart B)

Subpart B prohibits discrimination in employment against handicapped individuals. The principles developed under the Civil Rights Act of 1964 and the Education Amendments of 1972 were used as a basis for this subpart. Its provisions are consistent with those of section 503 of the Rehabilitation Act which requires federal contractors* to take affirmative action in the employment of qualified handicapped persons.

Although all the provisions of this subpart are aimed at the same objective--assuring nondiscriminatory treatment of handicapped workers--they differ in one important way. One group relate to the employer's recruitment, selection and promotion procedures and practices, while the other relates to the structure of the work situation and requires that employers make "...reasonable accommodation to the known physical or mental limitations of a handicapped applicant or employee unless the recipient can demonstrate that the accommodation would impose an undue hardship to the operation of the recipient's program." Reasonable accommodation includes adjustments like making facilities readily accessible, job restructuring, part-time and modified work schedules, acquisition or modification of equipment and devices, and other similar actions. The determination of whether an accommodation will be required (i.e., whether undue hardship exists) will be based on such factors as the size and type of the recipients operation and the nature and cost of the needed accommodation.

The provisions dealing with recruitment, selection and promotion procedures are designed to eliminate discriminatory practices without imposing any added cost (with the possible exception of minor administrative costs) upon recipients. For example, many firms and agencies make routine pre-employment inquiries about the mental and physical condition of the applicant. The proposed regulation would require that all employment application forms state that any handicap-related information requested will not in itself be used as a basis for denying employment. Also any such inquiry must be confined to job related matters and information must be kept confidential.

These provisions will especially aid those with the less visible handicapping conditions (e.g. epilepsy, diabetes, emotional problems). Many of these individuals are seriously inhibited in their job search because of the fear that they will be summarily rejected if they reveal their handicapping condition. For example, a person with epilepsy who could qualify for a better job may not apply because a minor accommodation would be required and

*The proposed regulation will apply to the recipients of HEW grants (as opposed to contracts) who are for the most part public or non-profit organizations (as opposed to proprietary firms). However there is an area of overlap with 503 since many universities receive both grants and contracts from the federal government.

he is afraid to reveal his condition. In this situation the individual's earnings capacity is reduced even though the employer might have been willing to make the required accommodation. Thus, the procedural provisions by themselves, even without additional reasonable accommodations, will produce benefits in the form of increased earnings for handicapped workers. Since the cost imposed on employers by these procedural requirements will be negligible, this part of the subpart is clearly highly cost effective.

The reasonable accommodation provision also seeks to provide benefits by breaking down the employment barriers due to ignorance and stereotyped thinking. It differs from the procedural provisions, however, in that it will require employers in some situations to incur additional costs at the outset in order for the handicapped worker to be equally productive. The phrases "in some situations" and "at the outset" are underlined to stress that for most combinations of types of handicapping condition and job category "reasonable accommodation" will require either no or only minor outlays.

For example, it might involve no more than abandoning a misconception such as thinking that hiring a person with epilepsy will raise accident insurance rates. And in situations where outlays are required it will usually involve only a minor initial investment rather than a major on-going outlay. For example, this might mean recognizing that the traditional job specifications are either outmoded or can be easily adapted to the particular type of handicap in question.

Of course there are some situations where the types of accommodations that would be required can become a source of controversy. These situations are of two kinds. One involves disease entities that may or may not be in a stabilized condition. Diabetes and cancer are the two important types that occur in practice.* Dispute can arise over what the actual probabilities of re-occurrence are and we will review the experience under section 503 in connection with this issue.

The other class of situations involves the various kinds of emotional handicaps -- psychotic reaction, depression, anxiety reaction, etc. The emotional handicaps differ sharply from the physical in how much they can be overcome by simple job restructuring and other kinds of minor accommodations. As shown below (appendix A, table 5), the effect of emotional handicaps on earnings is much greater than for many severe types of physical disabilities. It is not clear whether discrimination by employers is as major a factor in lowering earnings for the emotionally disturbed group as for the other group. In any case,

*Interview with David Brigham, Office of Federal Contract Compliance and Programs. Mr. Brigham provided information from his experience with administering section 503. (It should be noted that the Office for Civil Rights does not view this problem in terms of reasonable accommodation, but in terms of whether such a person is qualified for the job in question. The discussion of the problem is retained here and on page 11, however, because it conforms to the author's analysis of the issue.)

the applicability of most of the known types of "reasonable accommodation" would appear to be limited for those with emotional handicaps. As experience evolves, the program should be closely monitored for guidance on this issue.

The reasonable accommodation provision is likely to generate concern about possible significant cost increases. Therefore the rest of this section is primarily devoted to presenting data and survey results on the probable costs of reasonable accommodation. First, however, evidence on pecuniary benefits (attributable to the entire subpart) is also presented.

It is important to note that the cost of making buildings accessible, which is one important type of reasonable accommodation, will be covered below in the analysis of subpart C. In balancing costs and benefits for the entire regulation the reader should be careful not to double count the costs of making buildings accessible. The cost of building accessibility should be added to the non-accessibility costs of all the other subparts and then this total cost should be compared to the sum of the benefits flowing from each of the subparts (again being sure not to double count any benefits).

Benefits*

There will be both psychic and pecuniary benefits from eliminating job discrimination. Both society in general and the handicapped worker in particular will obtain some psychic benefits from the elimination of employment discrimination. The fact that psychic benefits cannot be easily measured objectively does not make them any less significant and they should be considered when the overall balance is struck between costs and benefits.

Pecuniary benefits accrue in the form of increased earnings and employment stability for the disabled workers which reflects their greater contribution to the Gross National Product.

How great are these pecuniary benefits likely to be? Given the state of existing knowledge, there is no basis for anything more than an informed guess. We estimated (see appendix A) that the regulation might affect about one million disabled workers. We also estimated that the annual earnings of partially work disabled males might be as much as 18% lower on account of employment discrimination. Combining these two estimates yields an estimate of approximately $1 billion per year in benefits via the higher earnings capacity of handicapped workers. If we halve the estimate of the effect of discrimination on earnings (to 9%) then the estimate of annual benefits is halved, etc.

*The benefit estimates are based on estimates of certain parameters that were derived from a brief analysis of available data on disability status and earnings. See appendix A for the details of this survey.

Costs Associated with Reasonable Accommodations

This part of the subpart requires covered agencies and firms to make reasonable outlays on whatever special resources are needed for full utilization of handicapped applicants. As noted above, probably the major source of cost increase associated with reasonable accommodation in employment--that of making buildings physically accessible--is covered below as a separate subpart. For most cases the only other types of accommodations that are envisaged are those that involve little more than discarding stereotypes about what impact employing handicapped workers will have on the agency or firm. One of the most widespread of these myths is that employing handicapped workers will decrease safety performance and increase disability and life insurance rates. A number of studies have shown that this is not the case.*

If an agency or firm has never employed a handicapped worker then the chances are it has not done any systematic thinking about the task content of its various job categories.** It always appears at first that someone with a dramatic physical handicap (e.g. a totally blind person) could not perform the work at the productivity level of a non-handicapped person. However many modern jobs involve primarily mental tasks and once the percent of sub-tasks that require the missing physical ability (sight, use of both hands, etc.) falls below a certain percentage, it is possible, and often simple, to restructure the job situation so that the handicapped worker can perform equally well.

Experts in the area of vocational rehabilitation stress a general principal that explains some of the surprising patterns in the data on earnings by type and severity of disability.*** The basic idea is that the variety of job situations in a modern economy combined with the great variety of forms that physical disabilities take, assures that there will be at least a few rewarding and renumerative jobs that can be very easily restructured for any physically handicapped individual. Data in appendix A on the employment of veterans show that there is relatively high earnings and employment participation among even very severely handicapped veterans. This is some indirect evidence for the general principal. More direct evidence will now be presented. There have been

*The results of several surveys are summarized in Sandra Kalenik, "Myths About Hiring the Physically Handicapped" Job Safety and Health, Vol. 2 #9, Sep 1974: and in J. Wolfe, "Disability is No Handicap for DuPont", The Alliance Review, National Alliance of Businessmen, Winter 73-74. A detailed study of the relationship between job safety insurance and hiring workers with epilepsy is Eilers and Melone, The Underwriting and Rating of Workmen's Compensation Insurance With Particular Reference to the Coverage of Employees Afflicted With Epilepsy, published by the Epilepsy Foundation, Wash., D.C.

**This was found by Wilson, et. al., in their survey study. Wilson, Richards and Berceni; Disabled Veterans of the Vietnam Era: Employment Problems and Prospects, HumRRo Technical Report 75-1, Alexandria, Va. Jan 1975.

***At least four individuals made this observation to the author: Mr. Dave Brigham, Mr. George Majors, Ms. Anne Beckman, and Mr. Edward Lynch.

a number of surveys that document what firms have done to accommodate handicapped workers. The initial experience of the Office of Federal Contract Compliance and Programs (OFCCP) with enforcing section 503 is also reviewed. Finally we present a detailed documentation of the types of jobs that have been successfully adapted to accommodate totally blind individuals.

(1) Survey Studies

We present the findings of three surveys, one by the Civil Service Commission, one by the DuPont Company and the one cited above that was undertaken to help disabled Vietnam veterans with their employment problems.*

The Office of Selective Placement of the Civil Service Commission completed a survey in August, 1970, of their placement of severely handicapped individuals in the federal government. The group studied did not include mildly or moderately handicapped persons but only those persons whose handicap was sufficiently severe to preclude their placement through regular competitive service procedures. The following description of the surveyed employees reveals that they constitute the group which is traditionally the hardest to place in employment and the one which would be expected to create the most severe problems in terms of the cost of accommodation:

> More than one-third of the appointees were deaf or had severe hearing losses. Most of the deaf were also mute. Other disabilities commonly noted were blindness, upper and lower body impairments, and amputations. More than half of the appointees had multiple impairments.

Nevertheless, very little job restructuring or work-site modification was necessary to accommodate the limitations of these employees. In terms of job restructuring, 317 of the 397 persons placed required no accommodation, 62 required some (described by the respondents as "incidental"), and 18 did not respond. Thus, of the 379 who did respond, 80.5% or 4 out of 5 required no job restructuring at all.

In terms of modification of work sites, 336 persons required no modification, 44 required some (primarily minor changes, such as adjustment of work benches), and 17 did not respond. Thus of the 380 who did respond, 86.9% or 7 out of 8 required no work site modification. The CSC report based on the survey concludes that "contrary to the general assumption, the severely handicapped do not usually, or even often, require major alterations in a job situation. When changes are made, they were such incidental things as installing a wheelchair ramp at a building entrance, rearranging desks and file cabinets to improve mobility and accessibility, etc."

*The reader is cautioned that these studies may not be representative of the universe of employers that will be covered by the proposed regulation and hence only moderate confidence in their resources is warranted. Note also that these studies deal primarily with physically handicapped persons.

Another study was conducted at E.I. DuPont de Nemours and Company. The occupations of the employees studied and the range of their handicaps, as well as the results of the study, are described in an article* published in the Alliance Review. Table 1 shows the distribution of handicapped workers by type of occupation and disabling condition. The relevant findings were that there was no increase in insurance costs and that the physical adjustments required were minimal, with most of the handicapped workers requiring no special work arrangements at all. In terms of safety, job performance measures, job stability and attendance record, the handicapped workers as a group scored higher than non-handicapped workers.

In the survey of disabled Vietnam era veterans (which included a large fraction of severely disabled veterans) a question was asked each veteran about what special accommodations (if any) were made by their employer. Only 11% of the veterans who had held a job in 1973 reported that any special accommodation was made at all.** Table 2 presents a distribution of the accommodations reported by type of special arrangement. The authors of the study based on this survey conducted extensive content analysis of all the responses they received. They concluded that:

> "As the tables show, most of the special arrangements make minimal demands on, or entail minimal costs to the employer...even in cases where the employer provided special equipment the cost seemed to be minimal....."***

(2) OFCCP Experience with Section 503

OFCCP has the responsibility for enforcing non-discriminatory employment of handicapped individuals by all employers who receive contracts from the federal government. The 503 regulation is similar to subpart B of the proposed regulation except that it also requires that affirmative action be taken. It is generally agreed that affirmative action can

*Wolfe, "Disability Is No Handicap for DuPont," Op. Cit.

**This low percentage may not neccessarily be a good sign overall. It might reflect lack of effort on the part of some employers as well as lack of necessity. This data set also contains a question on perceived discrimination (see appendix A, table A-9) but the authors did not present any tabulations which crossed the response on the accommodation question with the perceived discrimination response. If they were uncorrelated then the low overall percentage who reported receiving any special accommodation would be unambiguously a good thing.

***Wilson, Richards and Bercini, Op. Cit., p. 156.

TABLE 1

HANDICAPPED EMPLOYEES OF DUPONT CO. BY OCCUPATION AND TYPE OF DISABILITY (PERCENT DISTRIBUTIONS)

OCCUPATION	
(Total number. . . . . 1,452)	
Professional, Tech. & Mgr.	23.0%
Craftsmen	38.7
Operatives	16.0
Clerical & Kindred	15.4
Laborers and Service Wks	6.8
	100.0

TYPE OF DISABILITY	
(Total number. . . . . 1,459*)	
Nonparalytic Ortheopedic	28.4%
Heart Disease	26.0
Vision Impairment	19.0
Amputation	11.2
Paralysis	7.3
Epilepsy	3.8
Hearing Impairment	2.9
Total Deafness	.9
Total Blindness	.3
	100.0

*Some employees have more than one handicap.

Source: Wolfe, "Disability Is No Handicap for DuPont," Op. Cit.

imply a significantly higher level of extra effort than implied by the concept of reasonable accommodation. Thus the use of the 503 experience as a guide to what will happen under 504 is clearly conservative in that 503 will, because of its affirmative action provision, lead to larger costs than will be necessary under 504.

Mr. David Brigham of OFCCP provided detailed information on what the early experience under 503 has been. Their procedures recommend a sixty day "cooling off" period during which a potential complaint is discussed between only the employer and the handicapped worker. Mr. Brigham reported that the large majority of complaints have been disposed of during this cooling off period without having required any hearings before federal officials. A total of 331 complaints have thus far not been resolved during the cooling off period and have reached the level of arbitration before OFCCP officials. It follows therefore that these 331 complaints represent predominantly serious situations. The average situation over all workers who initiate complaints will be much less serious and costly.

TABLE 2

CATEGORIES OF SPECIAL JOB ARRANGEMENTS MADE BY EMPLOYERS, AND PERCENT OF VETERANS REPORTING ARRANGEMENTS IN EACH CATEGORY*

Special Job Arrangements	Percent	N
Flexibility of hours	18	56
Extra rest breaks	16	49
Assigned to appropriate job in the first place	16	49
Regular duties but no lifting	13	40
Change of duties or transfer of job	10	31
Special equipment	8	24
Work at own pace	7	22
Special parking	5	16
Help from supervisor or others	4	12
Miscellaneous	2	5

*Based on a content analysis of 304 randomly selected job arrangements reported by disabled veterans in response to the question, "Did your employer make arrangements so that you could work with your disability? (For example, extra rest periods, special parking, special equipment for doing the work, change of job duties, help from supervisor)."

Source: Taken from Wilson, Richards and Bercini, Op. Cit. p. 155, table V-11.

Mr. Brigham said that almost all of the difficult cases to date fall into two categories. One involves disabilities caused by disease entities that have not obviously stabilized--cancer, diabetes, etc. Here the position of OFCCP has been that if the person is qualified at the present time then the burden of proof is on the employer to show that the costs of the unexpected recurrence of the disease entity (e.g. costs of providing a new worker with break-in training) are so high as to make the accommodation unreasonable. Mr. Brigham noted that the crucial factor in determining whether the cost imposed would be unreasonable is the size of the firm and the proportion of total employment cost that the extra cost would constitute.

The other problem area are cases associated with emotional handicaps. How to define reasonable accommodation in these situations requires difficult judgments. A related issue is that of determining whether the complaining person really considered himself a handicapped person of if he is just using the handicap as a way of saving a job that he (she) is being dismissed from on other grounds.

(3) Jobs and Accommodations for Blind Individuals*

Since World War II there have been a number of very detailed surveys of the employment situations of totally blind veterans. Many studies of job restructuring aimed at opening up jobs for blind people are readily available. The most well known judicial decision on what constitutes reasonable accommodation also involves a blind individual. Thus, the information about adjustments required for people who are totally blind, which is a very severe disability, can be used to illustrate in detail what reasonable accommodation might entail in practice.

The court case involved a blind teacher in upstate New York. The New York State education law contains a regulation that specifically forbids school administrators from laying off a teacher who goes blind as long as the handicap does not interfere with his ability to teach. In his argument** the judge reasoned that blindness in and of itself does not impair the faculties required to be an effective teacher (i.e., ability to organize material for presentation, present it orally before the class, etc.) so that the law required that the school system supply the teacher with whatever special resources were necessary to carry out the ancillary functions of paper grading, calling on students who raise their hands, etc.

*Mr. George Majors, Office for the Blind and Visually Handicapped (HEW), was interviewed in connection with this section. He and his staff provided the references cited herein.

**Bevan vs. N.Y. State Teachers Retirement System, 345 N.Y.S. 2d. 921.

What does the extra cost of employing a blind teacher actually amount to in practice? In the school year 1968-69 there were 334 blind teachers working in elementary and secondary schools in the United States.* Dr. Edward Huntington did a study based on questionnaire and personal interviews with some of these teachers and with the school administrators in the systems where they worked.** He questioned administrators on eight potential problem areas: lunchroom supervision; administering tests; study hall supervision; chaperoning student activities; use of visual aids; fire drills; keeping written records; and discipline. For all the categories Dr. Huntington found that either the blind teacher could do what appeared at first to require sight (e.g., lead children out of the building at fire drills), or that compensating substitutions could be made between the different categories (e.g. taking on more monitoring duties like study hall and dances instead of lunchroom supervision). Discipline turned out not be the problem that had been expected. However, Dr. Huntington does mention the caveat that there is still some disagreement about the feasibility of blind teachers in elementary schools. The amounts of extra resources that the average blind teacher requires were very minor -- a braille typewriter and a cassette tape recorder for keeping written records and the occasional use of an honor student to help proctor examinations and then read the answers into a tape recorder.

In sum, Dr. Huntington's analysis suggests that the only area of controversy in deciding what constitutes reasonable accommodations for blind teachers is the question of the age of the students. Clearly the issues of discipline and effective pedagogy (is it important educationally for the teacher to be able to see the young child's reaction?) could be important at the lower elementary grade levels. However, Dr. Huntington's analysis also shows that there will be no problems in enforcing reasonable accommodation for blind teachers at the secondary and college level.

Table 3 shows how a sample of totally blind veterans were distributed by types of job.*** The very uneven distribution of the totally blind by type of work suggests that the enforcement of reasonable accommodation will have to be very flexible -- not all jobs can be easily adapted to lack of sight although the range of possibilities that turns up in practice is truly surprising.

*Employment of Qualified Blind Teachers in Teaching Positions in the Public School Systems at Both the Elementary and the Secondary Grade Levels, Report Presented by The New York Association for the Blind, 111 East 59th Street, New York, New York 10022, March 1969. Tables I and II, pp. 50-55.

**Dr. Huntington presents a summary of his findings in Employment of Qualified Blind...., Ibid, pp 42-45.

***Occupations of Totally Blinded Veterans of World War II and Korea, prepared by the Dept. of Veterans Benefits, VA pamphlet 7-10, Va., Washington, D.C., 1956.

TABLE 3

DISTRIBUTION OF JOBS OF 338 TOTALLY BLIND VETERANS AMONG DOD PART IV CLASSIFICATIONS
(Percent distribution)

	Percent	
Professional, Technical, and Managerial Work (147)		37.9%
Musical work (4)	2.7%	
Literary work (7)	4.7	
Public service work (27)	18.3	
Technical work (17)	11.5	
Managerial work (92)	62.5	
	100.0	
Clerical and Sales Work (54)		13.9
Recording work (4)	7.4%	
General clerical work (3)	5.5	
Public contact work (47)	87.0	
General public contact (15)	100.0	
Selling (32)		
Service Work (6)		1.5
Farming (48)		12.3
General farming (18)	37.5%	
Animal care (28)	58.3	
Fruit farming and gardening (2)	4.1	
	100.0	
Mechanical Work (37)		9.5
Machine trades (8)	21.6%	
Stone or glass machining (1)		
Mechanical repairing (7)		
Crafts (29)	78.3	
Electrical repairing (8)	100.0	
Bench work (11)		
Inspecting and testing (2)		
Photographic work (8)		
Manual work (96)		24.7
Observational work (5)	5.2%	
Manipulative work (70)	72.9	
Benchwork (Assembled and related) (45)		
Machine Operating, manipulative (25)		
Elemental work (21)	21.8	
	100.0	100.0

Source: Occupations of Totally Blinded..., Ibid., p. 6.

The study based on this survey lists in detail the arrangements and accommodations surrounding each of the 388 job situations. It is difficult to summarize this material in that the specific types of minor devices, task restructuring and use of sighted individuals is so diverse. In the professional public service and managerial areas the part time assistance of a graduate student (or other secondary worker--wife, elderly part time worker, etc.) is usually the only extra resource required (when any are required at all). In the employment and clerical field the accommodation usually involves only minor job restructuring to allow the blind clerk or secretary to specialize in those parts of the office information network that do not require immediate sight -- e.g., handling information received over the phone and stored in dictaphones as opposed to processing written information left in in-boxes that require immediate response.

Recent developments in job restructuring technology suggest that the clerical area is going to become a more important source of employment for blind individuals. The general area is called "Information Service Processing" and includes such jobs as social security service representative, vehicle dispatchers and starters, estimators and investigators, etc.*

Precise Wording of the Reasonable Accommodation Provision.

Our analysis strongly suggests that in the large majority of cases enforcement of reasonable accommodation will not result in any significant cost increase for employers. However, some of the material covered indicated that there are situations in which accommodation would, except for very large agencies and firms, require significant financial outlays, and/or risks and disruptions. This suggests that thought should be given to alternative ways of wording the provision. One approach possible would be to define reasonable accommodation as a percent of some economic factor such as the total wage bill or per employee costs. No completely satisfactory solution has yet, however, been devised.

*Louis Vieceli, Guidelines for the Selection, Training, and Placement of Blind Persons in Information Service Expediting, Rehabilitation Institute, Southern Illinois University, Carbondale, Illinois, June 1975.

III. PROGRAM ACCESSIBILITY (Subpart C)

Subpart C prohibits the exclusion of qualified handicapped persons by reason of the inaccessibility of a recipient's facilities; it applies to all programs and recipients covered by the proposed regulation. Two standards are established for program accessibility -- one for new construction and alteration (84.23), the other for existing buildings (84.22).

Under section 84.23, new construction and design must, at a minimum, meet the standards for barrier free construction established by the American National Standards Institute (ANSI). Any alteration of existing buildings which is undertaken must also conform to the ANSI standards if the alteration involves work on a portion of the facility which is covered by the ANSI standards, such as toilets, elevators, stairs, and curbs. All federal and federally assisted construction is subject to virtually identical requirements under the Architectural Barriers Act, P.L. 90-480; public buildings are subject to similar requirements imposed by state law in forty-eight states.

Under section 84.22 (existing facilities) each program or activity, when viewed in its entirety, must, within three years of the effective date of the regulation, be physically accessible to handicapped persons. Because of the flexibility allowed by the regulation, it is expected that most recipients will be able to achieve compliance by altering, at the very most, only one-third of their existing buildings.

The following presents a range of estimates of the cost of compliance for existing facilities. Although the estimates lack precision, they do give some idea of the magnitude of the costs which will be incurred. After presenting cost estimates, the sources of benefits are indicated and alternatives are considered.

Cost Estimates

New Construction

The Office of Facilities, Engineering and Property Management (OFEPM), HEW, recommends that for budget purposes the cost of barrier-free construction should be estimated at one-half of one percent of the total project cost. Other estimates vary from one-tenth to one percent. The most commonly accepted figure is, however, the one recommended by OFEPM. This low percentage increase, together with the existence of partially duplicative state and federal requirements, renders the economic impact of this provision insignificant.

Existing Facilities

The total estimated cost of altering enough existing facilities to meet the standard of program accessibility is between $216 - $475 million, or an annualized cost of $50 million.* The method of arriving at these figures follows.

Elementary and Secondary Schools. If all buildings were required to be completely accessible, we estimate that $458 - $1,000 million would be needed (see table 4). However, because of the flexibility allowed in attaining compliance it appears reasonable to assume that, at most, only one-third of this total would be needed -- $151 - $333 million.

Only about 10% of all elementary and secondary school children are handicapped** and a much smaller percentage (probably not exceeding 1%) have those kinds of physical handicaps that require special modifications of buildings. Thus, most recipients should be able (by providing the required transportation) to assign all of their physically handicapped children to either new or already accessible existing facilities. For example, even a moderate size local system (say with only 5 - 10 separate buildings) with no new or already accessible buildings, should have to modify only one or two of its buildings. Similar percentage factors and reasoning apply also to the schools viewed as employees of adult handicapped individuals. Thus, the cost estimates based on our assumption of one-third appear to be very conservative - i.e. they are definitely upward biased.

Higher Education. If all buildings of institutions of higher education were required to be completely accessible, we estimate that $198-$432 million would be needed for that purpose (see table 4). Applying the same very conservative one-third assumption used for elementary and secondary schools, the costs would be in the range $65-$142 million.***

*The larger figures represent costs that are "one-time outlays" which must be "annualized" before they can be compared with perpetual benefit flows like the increase in annual earnings estimated in Section II. "Annualization" involves factors like annual maintenance outlays and the rate of return that could be earned if the funds were invested elsewhere.

**An analysis of special education proposed by Mr. Howard Bennett (Office of Civil Rights) suggests that the proportion may even be lower than 10%. See Special Education, Office of Civil Rights, March 17, 1975.

***This does not cover non-degree granting post-secondary schools. These consist primarily of proprietory vocational schools, and hard data on numbers of students enrolled, etc., is hard to come by. This ommission will add a source of downward bias to our estimates but it is unlikely to be larger than the offsetting upward bias caused by our one-third assumption.

TABLE 4

CALCULATIONS OF ESTIMATED COSTS OF REMOVING ARCHITECTURAL BARRIERS IF ALL BUILDINGS WERE REQUIRED TO BE ALTERED

Elementary and Secondary Schools		
1. Estimated value of school property (71-72)[a]		$88.5 Billion
2. Low-side estimated percentage cost to remove barriers by alteration[b]		.517%
3. High-side estimated percentage cost to remove barriers by alteration[c]		1.13%
4. Estimated cost of removing barriers by alteration if all buildings needed alteration	--- (2) x (1)	$ .485 Billion
	--- (3) x (1)	$ 1.000 Billion
Institutions of Higher Education		
5. Estimated value of school building property (71-72)[d]		$38.2 Billion
6. Estimated cost to remove barriers by alteration if all buildings needed alteration	--- (2) x (5)	$ .198 Billion
	--- (3) x (5)	$ .432 Billion

Notes and Sources:

[a] Obtained from data reported in National Center for Educational Statistics Survey 75-153, pp. 72, 38 and 40. The basis of the value reported by schools is the historical cost of the original construction plus any improvements made to date. Because of inflation, the actual current replacement cost of buildings (and presumably the current cost of modifying them) will exceed their book value with the excess being greater the older the building and the greater the average rate of inflation since its construction. This will be another source of downward bias in our cost estimates. Although it is not possible to determine the magnitude of the bias, it also appears likely that it will be outweighed by the upward bias contained in the one-third assumption.

[b] Based on the average of two HEW accessibility projects that were surveyed by GAO. See p. 89 of "Further Action Needed to Make All Public Buildings Accessible to the Physically Handicapped," Comptroller General of the U.S. Based on GAO Report FPCD 76-166, July 1975.

[c] Same as (b) except that it is the figure reported for an average of seven governmental projects surveyed.

[d] NCES Survey 75-114, p. 102.

Hospitals and Nursing Facilities. Many of these facilities are already subject to the ANSI standards through Federal regulation and state laws dealing with access of disabled people to public facilities. Because recipients who provide health services are accustomed to handling clients whose mobility is impaired, it is assumed that their facilities are, for the most part, already accessible. The proposed regulation should not, therefore, impose significant additional costs on these recipients.*

Welfare and Rehabilitation Service Buildings. Various regulations (including 45 CFR 128, to be effective 10/76), as well as general policy, require case workers to give services or determine eligibility wherever necessary. Thus, if the client or potential client is unable to go to the building where the service is performed, the case worker must go to the client's home. Because this approach to creating program accessibility is permitted by the 504 regulation, no significant additional costs will be incurred by these recipients.

Table 5 presents a summary of our estimates of the range of possible cost increments.

TABLE 5

ESTIMATES OF COST
INCREMENTS FOR MAKING ALL EXISTING
FACILITIES ACCESSIBLE
(Millions of dollars)

Type of facility	Low side	High side
Elementary and Secondary School	151	333
Higher education	65	142
Hospital and nursing	0	0
Welfare and rehab service	0	0
Total	216	475

Source: See text discussion.

*It has not yet been decided whether individual doctors who are reimbursed under Medicare and/or Medicaid are considered recipients and thus covered by the proposed regulation. However, even if they are, it does not appear likely, given the flexibility allowed in attaining compliance, that significant costs will be imposed on individual participants. Many are located in already accessible medical buildings and others will be able to comply by making house calls, referring to doctors with accessible office facilities, scheduling physically handicapped patients in groups at accessible facilities, etc.

Benefits

Increased building accessibility will generate benefits in three areas: (1) reduced costs of providing elementary and secondary education to some handicapped children; (2) increased lifetime earning capacity of those additional handicapped youngsters who will now go on to college and (3) the increased earnings capacity of handicapped workers who can now find better employment of their skills in jobs located in newly accessible buildings.

Each of these areas is also the subject of its own subpart -- elementary and secondary education (subpart D); higher education (subpart E) and employment (subpart B). The total amount of benefits for each of these areas will be the sum of the benefits produced by both the physical accessibility provisions of this subpart and the other (non-accessibility) provisions of each specific subpart. Thus in subpart B above we estimated that the total amount of pecuniary benefits from all the provisions influencing employment discrimination (i.e. procedural provisions, non-accessibility accommodations and accessibility accommodations) might be as much as $1 billion per year. Similarly in our analyses of subparts D and E below we will include the effects of both the accessibility provisions of this subpart and the other non-accessibility provisions of each of those subparts. In the concluding section, the costs of this subpart are added to all the non-accessibility costs associated with the other subparts and this grand total is balanced against the sum of the benefits of all the other subparts.

Alternatives

Possible alternatives range from requiring the immediate modification of all of the recipients' existing facilities to limiting the regulations coverage to new construction. The approach finally decided upon, which allows recipients to keep costs minimal by using methods other than physical alteration of all building, was believed to constitute the most equitable balance between the interests of excluded handicapped persons and those of recipients. The cost estimates shown above, when combined with evidence presented elsewhere on the magnitude of the benefits that will be generated, lends support to this decision.

IV. ELEMENTARY AND SECONDARY EDUCATION (Subpart D)

Subpart D of the proposed regulation sets forth nondiscrimination requirements applicable to recipients which operate preschool, elementary, secondary, and adult education programs. Under its provisions no handicapped child may be denied a public education, nor may such a child be excluded from the regular education program unless suitable alternative education is provided at public expense. In the latter case, the burden of showing that placement outside the regular setting is in the best interests of the child is placed upon the recipient (sec. 84.35); the child and his or her parents or guardian may object to the placement and have the right to an impartial hearing if they do so (sec. 84.36(e)). If it is determined that the child's interests will be best served by placement in a program other than the one operated by the recipient, then the recipient must pay full tuition, and, if incurred, any room and board, and transportation costs of that placement (sec. 84.34).

It is expected that these provisions, together with the standards established in the regulation for preplacement evaluation (sec. 84.36(c)), will result in a greater proportion of handicapped students being placed in the regular school setting. Whether placement is made to regular classes, special classes, or outside the recipient's program, the regulation requires that the education provided be as adequate, in terms of meeting the needs of the handicapped child, as is provided to non-handicapped children (sec. 84.36(a)).

Other provisions of Subpart D require public schools to locate handicapped children who are not presently in school (sec. 84.33) and, within one year of the effective date of the regulation, to provide nonacademic and extracurricular services without discrimination on the basis of handicap (sec. 84.37). Where applicable, the subpart applies to private as well as public schools.

In order to analyze the effects of this subpart, it is important to understand the context of judicial and legislative developments in which it will operate.

Background and Plan of Analysis

Table 6 presents data that indicate the broad outline of trends in special education in the United States. Since the end of World War II there has been a steady up-trend in various indicators of the coverage and effectiveness of special education, such as in the proportion of all handicapped childred served, amounts of resources spent per student, and proportions served in the less restrictive type settings. These broad trends in amounts and types or resources both reflect, and have themselves influenced, developments in the courts and the State legislatures regarding the legal status of the handicapped child's right to an equal education.

Recent landmark decisions* have made it clear that handicapped children have a constitutional right to public educational resources regardless of their degree of handicap (so

*The two most often cited cases are: Pennsylvania Association for Retarded Children v. Commonwealth of Pennsylvania, 334 F. Supp. 1257 (E.D. Pa. 1971) and 343 F. Supp. 279 (E.D. Pa. 1972); and Mills v. Board of Education of District of Columbia, 348. R. Supp. 866 (D.D.C. 1972).

TABLE 6

TRENDS IN SPECIAL EDUCATION: NUMBERS OF HANDICAPPED CHILDREN SERVED AND THE PERCENT OF ALL HANDICAPPED CHILDREN BEING SERVED** IN SELECTED* CATEGORIES: 1966-1975

Type of Handicap	1966		1972-73		1974-75***	
	Number of children	Percent of total	Number of children	Percent of total	Number of children	Percent of total
Speech impairment	989,500	56.3	1,383,000	76.7	1,729,750	81.0
Mentally retarded	540,100	46.8	900,000	80.5	1,168,750	83.0
Emotionally disturbed	87,900	12.0	199,000	19.3	215,050	18.0
Crippled or other health	69,400	18.4	233,000	86.7	219,725	72.0
Deaf	23,500	47.0	28,000	71.6	32,725	71.0
Hard of hearing	27,800	11.1	55,000	21.4	56,100	18.0
Visually handicapped	23,300	46.6	28,000	54.8	36,465	59.0
TOTAL	1,761,500	40.3	2,816,000	61.8	3,458,565	78.8

*Two legal handicapping conditions "Learning Disabilities" and "Multiply Handicapped" have been left out of the trend comparison. Learning disabled is a relatively recent and controversial category (it was not used by researchers or policy people in 1966) while comparable data for the multi-handicapped are just not available for 1966.

**The age groups covered differs slightly across the three time periods. In 74-75 it was 6-19; in 72-73 it was 5-17; and in 1966 it was probably 6-19.

***The figures for 74-75 are based on very preliminary data and are not as reliable as the figures for the other two years. Figures on the actual distribution of served children by handicapping category were not yet available so they were estimated by applying the 72-73 percentage distribution factors to the 74-75 total of served school age children 6-19.

Sources: 1966 figures from R. Mackie, Special Education in the United States: Statistics 1948-60, Teachers College Press (New York 1969). Numbers of served children were obtained by a direct mail survey

of all known public and private (day and residential) schools serving handicapped children. Estimates of total incidence that were used were obtained by combining information from a variety of sources including State Education Agencies, National Organizations, etc. Estimated incidence rates used were: SI=3.5%, MR=2.3%, ED=2.0%, Cr·H=1.5%, D=.1%, HH=.5%, VH=.1%.

1972-73 figures were reported in Kakalik, et. al., Services for Handicapped Youth: A Program Overview, RAND Corporation (Santa Monica 1973). Report #R-1220-HEW. Estimates of the total number served taken from SEA annual reports submitted to HEW. Estimates of total incidence based on data from a variety of sources. Incidence rates used were: SI=3.5%, MR=2.3%, ED=2.0%, Cr·H=.5%, D=.075%, HH=.5%, VH=.1%.

1974-75 figures are based on data supplied by the Bureau of Education of the Handicapped, HEW. Estimates of total numbers served obtained from SEAs annual reports. Estimates for the total served by handicapping condition were obtained by distributing the total served (age 6-19) according to the percent distribution that existed in 72-73. Estimates of total incidence were obtained by combining data from various sources. Incidence rates used were: SI=3.5%, MR=2.3%, ED=2.0%, Cr·H=.5%, D=.075%, HH=.5%, VH-.1%.

called "0 reject rule") and also that these resources shall be in an amount and delivered in a setting that will, in totality, provide the handicapped child with equal educational opportunity.

At the present time, most states have already passed legislation mandating that all the local school systems must provide sufficient educational resources to all the handicapped children in their districts. In addition, the Federal government has just enacted legislation that will, over the next few years, significantly increase the share of special education expenditures that the Federal government will pay for. This legislation (Public Law 94-142), also requires, as a condition for receipt of Federal aid, that the State provide free and adequate education to all handicapped children.

Thus, the proposed regulation will not be the sole means of achieving the goal of equal educational opportunity for all handicapped children. Rather, it will be one of a number of powerful forces all advocating approximately the same objective.* The role of HEW in enforcing this subpart can, therefore, be viewed as one of hastening and helping to enforce full compliance with the goal of equal educational opportunity for all handicapped children.

This role of hastening compliance should not be considered a relatively unimportant one. Experience in the District of Columbia and other areas which have been subject to court orders suggests that local agencies may take very long periods of time to actually comply unless they are faced with strong incentives to do so. Moreover, State legislation mandating full coverage is one thing, while actually appropriating the needed funds at the State and Local level is quite another. Thus, the potential for the regulation to make a significant net contribution is very real.**

We will develop our analysis of the cost and benefits that the regulation will help to produce in terms of various sub-groups of children and situations. Benefits and costs associated with each of the sub-groups are of a different character and also differ in the degree to which there could be differences of opinion as to the balance of costs and benefits. After a summary that brings together all the costs and benefits a brief discussion of the costs of alternative phasing in strategies is presented.

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*Sections of Public Law 94-142 cover most of the same ground as Subpart D of the proposed regulation. The only significant difference is in regard to the coverage of non-educational costs associated with residency situations. PL 94-142 does not explicitly state that non-educational costs associated with children in resident schools must be covered.

**Also it should be recognized that hastening of compliance itself has a cost vis a vis allowing a less rapid phase in. PL 94-142 allows states until September 1, 1978 to reach the goal of complete coverage of all children between the ages 3-18, and 1980 for children 3-21. The regulation follows the same schedule, except that there is no delay for children who are within the state's regular school age interval.

Sub-groups of Children

The children affected by this regulation vary along two crucial dimensions: (1) the degree and type of handicap they have and (2) the degree to which there exist effective advocates for them in the process of testing and screening, which in turn is often the determinative factor in whether or not they will be classified as handicapped and what type of special education setting they will end up in.

For children who have moderate and borderline degrees of handicap and whose families provide strong protection against mislabelling and misassignment, the main issue is that of obtaining (in a reasonable time frame) the appropriate amounts of additional special education resources from the public purse. Parents of handicapped children form a numerical minority in the political arena and even when educated and highly motivated to help their children cannot always bring the required political pressure to bear on State and Local legislatures to authorize the amount of funds required.

At the other extreme are children who have very severe or profound handicaps (e.g., a youngster who scores less than 30 on the IQ test) and who, for one reason or another, lacks the personal advocate necessary to insure that they will obtain appropriate residential care and educational services. For these children (a much smaller group than the first) the issue is much more basic -- absolutely assuring that this group always obtain decent and humane residential surroundings as well as access to meaningful educational experiences.

Finally, there is a third group of children who range in degree of handicap from being on the borderline of needing a residential setting to actually having no real handicap at all, and who lack strong parental advocates to protect them from mislabeling and misassignment abuse by the system. This group contains large numbers of de facto non-handicapped children from disadvantaged backgrounds who have difficulty performing on standardized tests and/or have frequent disciplinary episodes. This group shares with the first group the general problem of obtaining adequate amounts of special education resources. However for most of these children (especially those who do not really have handicapping conditions) the major issue is that of mislabeling and misassignment. For them the regulation's detailed due process and evaluation provisions (including the requirements of multiphasic testing and screening and periodic re-examination) and its emphasis on special education being delivered in the least restrictive setting possible can be vital. For example, it can mean the difference between an inappropriate assignment to a residential setting vs. obtaining special education in a regular school by spending part-time in a special class and part-time in a regular class. As shown below there is evidence that the negative impact of inappropriate institutionalization on a child's subsequent life chances (including lifetime earnings capacity) can be dramatic.

Cost-Benefit Analysis

The main source of pecuniary costs will be from extending special education services to handicapped children who are not now receiving any kind of special education. There will also be some shifts in the burden of the pecuniary costs of special education that will result from some parents shifting their handicapped children from private programs, where the parents pay part or all of the costs, into fully funded public programs.

There are a number of important sources of pecuniary benefits. One is the reduction in costs that will be generated by the requirement that handicapped children receive their education in the Least Restrictive Setting (LRS) possible. Another source of cost reduction will be in the non educational costs of maintaining severely and profundly handicapped individuals. The other important source of pecuniary benefits is the subsequent increase in the earnings capacity of both handicapped children and the non-handicapped children who escape mis-labeling. Sources of non-pecuniary benefits are the greater life satisfaction obtained by the children as a result of improved education and the general satisfaction obtained by us all from having helped to improve greatly the life situation of less fortunate individuals.

Details of these costs and benefits are now presented for our three sub-groups.

Severely and Profoundly Handicapped. The two important handicapping categories for which this issue is significant are mentally retarded and emotionally disturbed. Hobbs* reports that there currently are about 60,000 mentally retarded children of school age in residential institutions. The number of institutionalized emotionally disturbed youngsters is not easy to ascertain but it is likely to be significantly in excess of the number of institutionalized mentally retarded children. The latest estimates by the Bureau for the Education of the Handicapped indicate that as of FY 1974-75 there were about 1 million emotionally disturbed youngsters who were not receiving any special education resources. And it is probable that some significant proportion of these youngsters were in some kind of residential institution.

The thrust of the major recent court decisions on the right to education by the handicapped makes it clear that regardless of the nature or severity of handicap the State education authority is directly responsible for providing amounts of educational resources that are appropriate to the child's capacity. This is sometimes called the "zero based reject policy," and is one of the objectives that the proposed regulation will seek to promote by adding the weight of its enforcement potential to the enforcement power of the courts. The need for the additional enforcement power appears particularly urgent for this subgroup of children, and before presenting the cold facts and figures on costs it might be well to point out some of the reasons for this special concern.

*Nicholas Hobbs, The Futures of Children, (Jossey-Bass, Washington, D.C., 1975) p. 142

Students of social programs for the handicapped and other disadvantaged groups stress the importance of the personal incentives and attitudes of the administrators of institutions in determining the amounts of resources and the quality of treatment actually received by disadvantaged clients.* The reason that it is felt urgent to make State Education authorities directly responsible for educating the severely handicapped is that the traditional state administrators of the residential institutions that serve these children are not as strongly motivated toward delivering these types of resources. There still exists some debate over what benefits are actually obtained from education resources in the case of some very severely handicapped children. Thus, it is clearly in the best interests of the children to have an agency that believes in the efficacy of the treatment be the ones who are also responsible for struggling to obtain the funds, buy the resources, have them applied, etc.

The situations that existed before the court rulings in Pennsylvania and the District of Columbia, not two states that are noted for harsh treatment of the disadvantaged, also sharply demonstrate that the fate of these children cannot be left to the goodwill of just any administrator in the State bureaucracy. In Pennsylvania the officials who are overseeing the implementation of the Court order found that there were about 4,000 school age children in the nine State institutions for the mentally retarded in 1972. Of these about 2,500 were not being provided any kind of training or educational services at all. These were all children with IQ's in the severely and profoundly retarded range (IQ less than 30).** Previous to the court's decision the State welfare authority had responsibility for the education and other needs of all children placed in these institutions. Since the court decision, which placed the authority for the education of these children with the State Department of Education, all have been receiving some form of educational services with ever increasing percentages actually being taken to a classroom setting off-grounds.***

Assuming that we can expect that the key State administrators will be strongly motivated to deliver resources, the next issue is what amount of resources will be required? State specialists in education of the handicapped were queried as to the cost of providing

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*Hobbs, Ibid., Chapter 5.

**It was found that about 1500 children were being provided some form of educational services. However, it was also found that these children all had IQ's high enough to have benefited from special education in a non-institutional setting. This case is discussed again in connection with documenting the significance of the mislabeling problem.

***Telephone interview with Dr. Gary J. Makuch Assistant Commissioner for Special Education, Pennsylvania Department of Education, December 2, 1975.

educational services to the severely handicapped children in residential settings.* The consensus was a figure of about $5,000 per student per year. The word educational is underlined to stress that the $5,000 does not cover the cost of normal maintenance (food, clothing, shelter) and other non-educational activities that are required by the institutionalized child. This is a point that could develop into an important source of controversy.

The proposed regulation as now written states that a free education must be provided and will include provision by the State of non-medical care and maintenance (food, clothing, etc). It is not clear if it is meant that the State Education Agency must bear these non-education costs or that they can be allocated to any State agency's budget, just as long as they are provided to the child without any cost to his family.

From the point of view of the child and his family it makes little difference what State agency is made to absorb the cost as long as it does not have to pay them. However, from the point of view of insuring that educational services keep reaching the most helpless and deprived of the severely handicapped children (e.g., those with no family at all or very poor parents) it may be wise to require that the State education agency only be made to pay the special education costs associated with these children and have the State welfare office mandated to pay any non-educational costs incurred on account of their need for a residential setting. This is because the whole effort may run the danger of becoming very controversial if, because of the way it is administered, the State ends up paying the non-education costs of handicapped youngsters from non-poor families. If the State welfare agency is left with the responsibility for these non-education costs then it is likely that some special means tested formula will be set up under which a more equitable distribution of the burden by income class will develop.

On the benefit side there is the possibility for both psychic and pecuniary gains. The sources of the benefits are the increased capacity for enjoying life on the part of the youngster as well as the possibility of reducing the cost of supporting the youngster if he can learn to care for his bodily and personal needs such as dressing himself, feeding himself, shopping for himself, etc. Data presented by Conley** suggest that the annual cost of maintaining a severely retarded person, over and above the cost of his food, clothing and other normal consumption expenditure, was about $3,500 in 1970.

*Telephone interviews with Ms. Lucile Anderson (Virginia Department of Education), Mr. James Keim (Maryland State Department of Education) and Dr. Makuch.

**Ronald W. Conley, The Economics of Mental Retardation, (Johns Hopkins University Press, Baltimore and London, 1973) p. 297-298.

This primarily reflects the salaries of the many attendants that are required to assist the severely retarded person in taking care of all his basic bodily and personal needs. If educational/training services enable a severely retarded person to do without these attendants, then a cost/benefit ratio of 1 or greater is highly likely. Thus, if six years of education/training are required (at $5,000 per year) to produce this capability, and if the individual lives for more than 15 years after completing the training, then, the ratio of discounted benefits ($3,500 annually) to costs will start to exceed unity, if we use a reasonable range of discount rates.*

Can the severely and profoundly retarded be given this capability by receiving education/training type service as children? Given time limitations a search and survey of the child development literature was not feasible. Phone interviews with a number of State education department specialists elicited the opinion that they can produce this effect.

Children Vulnerable to Mis-Labeling. The major current concern of specialists in the area of education of handicapped children is the negative effect that the very process of labeling and assignment to identifiable special classes may be having on handicapped children.** This growing concern has resulted in an acceleration of the "Mainstreaming" movement -- i.e., the placing of handicapped children in the absolutely least restrictive setting possible. Another effect of this concern has been to focus even greater attention on the issue of mistaken diagnosis and the resulting compounding negative effect on the child's life chances.

Most of the major court decisions have spelled out in detail the type of testing, screening and mandatory re-examination procedures that must be followed by state school administrators in determining whether a child is handicapped or not and if so what type and degree of severity. The proposed regulation seeks to hasten the achievement of this objective in all states and thus decrease the total amount of mis-diagnosis and mis-assignment generated by the system.

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*The formula for the present value of a perpetuity of $(a) per year is

$$\text{Present Value} = \$(a)/i$$

where i is the discount rate. For streams of benefits that continue for more than 15 years this simple formula gives a good approximation to the exact value which is given by

$$\text{Present Value} = \$(a) \sum_{t=1}^{n} 1/(1+i)^t$$

when n is large. n is the actual number of years that the benefit continues.

**Hobbs, Op. Cit., Almost the entire book is devoted to this issue.

Reductions in mis-diagnosis and misassignment will yield benefits in the form of increased lifetime earnings capacity and increased life satisfaction of the children involved. There will also be benefits in the form of savings in the cost of special education from the increased amount of mainstreaming. Positive costs will be generated by the greater amount and quality of testing and screening procedures that will be required. No attempt is made to estimate these costs. They do not appear to be of any magnitude that would become oppressive to a school system. We do attempt however to get some idea of the order of magnitude of the benefits (including the reduction in special education costs). They appear to be potentially significant and they constitute one important offset to the costs generated by other parts of this sub-part and other sub-parts of the regulation.

A number of facts suggest the widespread existence of mis-diagnosis and misassignment. One striking example is provided by the facts uncovered in the landmark Pennsylvania case discussed above. It was found that approximately 37 percent of the instutionalized population of mentally retarded school age children scored in the IQ range between 40-75. Children who score in this range (and do not have any other traits that make the diagnosis more complex like having additional types of handicapping conditions) are labeled "Trainable" or "Educable" and are usually assigned to a regular public school system for some form of special education treatment to be delivered in a non-residential day school setting. Some fraction of these children undoubtedly were institutionalized because they had, in addition to a very low IQ score, some compounding disability conditions (e.g., severe lack of control of physical movements) so that they were not mislabeled or misassigned. However, people charged with overseeing implementation of the court's order* report that this cannot explain all of the 37 percent; i.e., some of these children were inappropriately assigned to an institutional setting.

Other evidence comes from studies done by psychologists concerned with the problem of the cultural bias in the standard IQ test and the degree to which this leads to the mislabeling of non-handicapped minority group children. For example Hobbs reports on a study in which the rate at which persons were being mislabeled as retarded were reduced almost 50 percent when an adaptive behavior test, in addition to the IQ test, was required. Almost all of the children who changed over from handicapped to non-handicapped status were Blacks or Chicano.

There is also some striking indirect evidence in connection with the category "Emotionally Disturbed." Many authorities in the field feel that there is widespread abuse with regard to this category. Children with no emotional disturbance problem but who have serious

*Telephone interview with Dr. Makuch.
**Hobbs, Op. Cit., p. 29-30

disciplinary problems are likely to end up labeled as emotionally disturbed. Perhaps the most widely cited evidence on this phenomenon is the difference in incidence of this handicapping condition by sex and age. Chart 1 shows data obtained from the National Center for Health Statistics' periodic survey of health status. Note the significantly higher rate for boys in the early years of elementary school which tends to disappear at the latter high school grade. Some of the narrowing could be due to selection processes that take place with age as more and more of the emotionally disturbed either recover or become instutionalized so that by the senior year of high school only the non-emotionally disturbed are left in school. Although this could probably explain some of the observed narrowing between age cohorts, it is not likely to account for all of it. In part it reflects mislabeled "bad boys" being unlabeled as they learn with experience to become "good boys."

The indirect evidence suggests that mislabeling and misassignment could be a significantly widespread phenomenon. Is there anything more direct we can say on the magnitude of benefits? By exactly how much special education outlays will fall is difficult to say, but it appears that the savings could be substantial. For example, even if we assume that only 50,000 children will shift from residential institutions to programs in regular school systems, an expenditure saving of $150 million per year would result. This assumes that the differential in educational outlays between a typical residency situation and a typical special education program in a day school setting is three thousand dollars per student, per year. Other crude cost saving calculations will be made and incorporated in a summary analysis below.*

Empirical evidence on the earnings capacity effects of mislabeling and misassignment is scanty, but what exists is very interesting. There is one study reported on by Conley** in which a group of low IQ students from regular classes (i.e., they were not labeled MR) was followed up along with a group of labeled children from both residency and special day programs. The study reported the following findings. Among those who had been officially labeled MR, labor force participation increased steadily with IQ level except that among

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*A detailed study of the cost saving effect of moving to less restrictive settings would also have to include an analysis of the possible sources of increases in expenditures per regular pupil that might take place when large numbers of handicapped children are mainstreamed. This effect would reduce somewhat the net expenditure savings but would not eliminate it. Also, some attention should be paid to the issue of possible non-pecuniary costs imposed on non-handicapped students due to mainstreaming handicapped children. Interviews with lawyers and others specializing in the area of handicapped children suggest that this is not an important issue. In practice the mainstreaming of handicapped children has not been observed to interfere with the education obtained by non-handicapped children.

**Conly, Op. Cit. p. 193

CHART 1

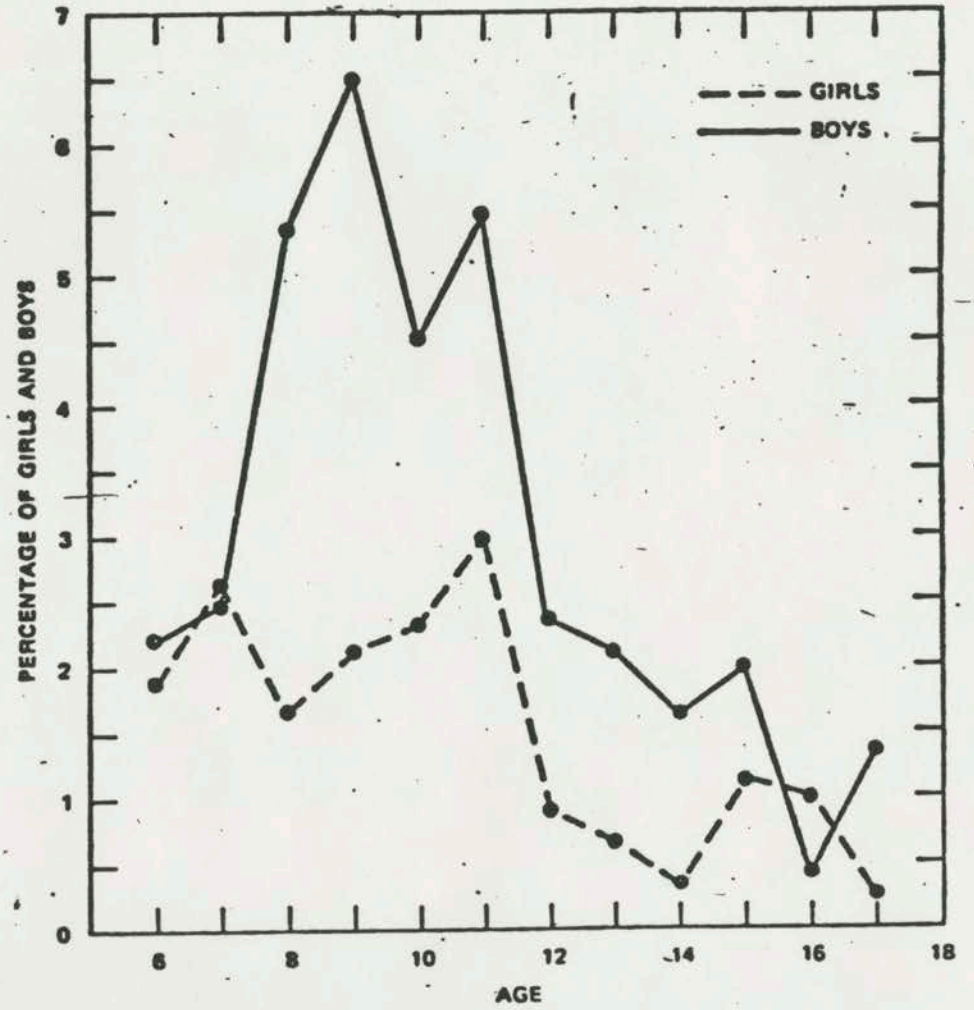

FIG. 4: COMPARISON BETWEEN GIRLS AND BOYS IDENTIFIED BY THE SCHOOL AS EMOTIONALLY DISTURBED, BY AGE

Source of Data: National Center for Health Statistics, Series 11. #139.

Chart is taken from Craig and McEachron, The Development and Analysis of Base Line Data for the Estimation of Incidence in the Handicapped School Age Population, Stanford Research Institute, California, 1975, Study prepared for the Assistant Secretary of Education, Office of Education HEW.

those with the highest IQ levels, participation fell below that of the members of the preceding IQ category. However, among those low IQ students who had not been labeled (and who had IQs about the same level as the highest IQ group among the labeled group) labor force participation was the highest of all.*

Another source of evidence on the effects of mislabeling and misassignment are the numerous studies of subsequent differences between institutionalized and non-institutionalized handicapped people. Both Hobbs and Conley cite follow-up studies that find that, ceteris paribus, institutionalization produces a variety of negative impacts -- low self esteem, excessive dependence, etc.

It is difficult to generalize from indirect evidence that was obtained in widely differing surveys etc. Much more time would be required in order to do a detailed critique of all existing studies and to even begin quantifying pecuniary benefits. Hobbs, who is a well-known authority in the field and who just completed a comprehensive survey of all aspects of this area, concluded very strongly that even what might be called "proper" labeling and categorizing can permanently stigmatize children and can lead to a reduction in their capacity to enjoy life and earn a living.

Handicapped Children in Need of More Resources. As noted above many States have already passed laws requiring that all handicapped children must be served and available data on trends show that over time more special education resources have been provided to the handicapped.

However, according to estimates of the overall incidence of handicapping conditions various gaps in coverage still exist. Table 7 shows the latest estimates of this gap both in the aggregate and by type of condition. We will use these numbers to make estimates of the gross cost increment from extending special educational resources to all uncovered children. The possible cost reducing effects via mainstreaming and less mislabeling, are brought together in the final section. The figures in Table 7 have a number of characteristics that should be understood before using them to estimate the gross increase in expenditures.

In each of the handicapping categories the figures for the total number of children (served plus unserved) are based on information obtained from a variety of sources including information from national agencies and organizations, plus state and local directors of special education. For most of the categories the overall incidence estimates

*It could be argued that much of the mislabeling effect is explained by the fact that mislabeled children usually are from very deprived family backgrounds and that it is this factor rather than mislabeling per se that produces the observed relation. No available study had tried to hold this factor constant and many investigators have found a strong correlation between parental apathy and mislabeling.

TABLE 7

ESTIMATED NUMBER OF HANDICAPPED CHILDREN SERVED AND UNSERVED BY TYPE OF HANDICAP 1974-75

Type of Handicap	Served	Unserved	Total	% Served
Total Age 0-19	3,947,000	3,939,000	7,886,000	50%
Total 6-19	3,687,000	3,012,000	6,699,000	55
Total 0-5	260,000	927,000	1,187,000	22
Speech Impaired	1,850,000	443,000	2,293,000	81
Mentally Retarded	1,250,000	257,000 (655,000)*	1,507,000 (890,000)*	83 (26)*
Learning Disabilities	235,000	1,731,000	1,966,000	12
Emotionally Disturbed	230,000	1,080,000	1,310,000	18
Crippled & Impaired	235,000	93,000	328,000	72
Deaf	35,000	14,000	49,000	71
Hard of Hearing	60,000	268,000	328,000	18
Visually Handicapped	39,000	27,000	66,000	59
Multi-Handicapped	13,000	27,000	40,000	33

Source: Same as for Table 6, 74-75 figures. The additional incidence factors are: LD=3.0%, Multi-H: .06%
Note: The same caveats in the note to Table 6 apply here

*Assumes a learing disabled incidence rate of 1.0% rather than 3%. See discussion in text.

from these sources has remained uncomfortably constant since around 1960; i.e., for visually handicapped, hard of hearing, speech-impared, emotionally disturbed and mentally retarded, the incidence percentages used in FY 75 are the same as those used in 1960.* This could lead to significant error especially for those categories (e.g., emotionally disturbed) that may have been influenced by developments in psychiatry and preschool intervention programs during the 60's.**

The category "learning disabilities" is a relatively new formal label for handicapped children. It is very controversial among students in the field. Many investigators assert that there is no objective way of ascertaining that a child has a "learning disability" other than to point to the results of the supposed handicap -- low grades in school relative to expectations, given the child's performance on IQ and other standardized tests. One skeptical researcher concludes that "children who fail in school but do not fit into other special education categories also may be labeled learning disabled.***

Another characteristic to note is that, for the most part, the numbers in the served category include children who are being served by private schools**** and the numbers for the unserved in most of the categories (emotionally disturbed however may be an important exception) represent children who are enrolled fulltime in regular public school classes. For the emotionally disturbed, however, they could represent large numbers of children in residential institutions who are not receiving any educational services at all. (Members of our first group above.)

In sum, it is likely that most of the estimated unserved children shown in Table 7 are moderately to borderline handicapped children, now enrolled in public schools, and spending their full time in regular classes. They are receiving no attention in a resource room, nor are they spending part or all of their day in special classes or buildings. Thus, the cost factors with which to multiply the unserved numbers in Table 7 should be ones that represent special education for a moderate to mildly handicapped child.

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*See the notes to Table 6.

**Ongoing research at the Stanford Research Institute is attempting to explore the usefulness of the National Center for Health Statistics survey for estimating the incidence of certain handicapping conditions (see the citation to Chart 1 above). However, there are still many unresolved problems with using this survey to guide educational policy (as opposed to medical care policy).

***Hobbs, Op. Cit. p. 80-81

****Most states now provide some form of partial reimbursement to parents who place their children in special private schools (or at least the state will keep records of all the hearings that were held in connection with parents' desires to go outside the public system). These generate records which each state searches when it is submitting its annual estimates of children being served.

The only available cost factors based on a systematic and identifiable sample of schools were those done by Rossmiller, Hale and Frohreich in their well known 1969 study for the National Education Finance Project.* They present excess cost estimates by type of handicapping category for a sample of "outstanding" school systems, i.e., ones which were selected on the basis of a panel of experts saying that they had exemplary special education programs. Unfortunately, they did not present any analysis of their cost factors by severity of handicap within a type category. However, they did present a detailed narrative discussion of the programs in each of the systems they served and there was variation in types of programs offered within a handicapping category. At any rate their published data allow for selecting excess cost factors along a range from high to low.

Table 8 contains various estimates of excess cost multipliers to apply to the numbers of unserved handicapped children in Table 7. Although these cost estimates are based on one of the better known studies in this field, they still suffer from a number of conceptual ambiguities that make them difficult for us to utilize.

For example, the authors make clear that they obtained all of the components of their per pupil cost factors on the basis of full-time equivalent average daily memberships. Thus, the school districts surveyed were asked to allocate a handicapped students' time to both regular classes and special classes if, in fact, he did not spend all his time in special classes. However, in their summary tables, the authors only report the figures that would be applicable for a "full-time" special education student. They do not report what fraction of his time a typical special education student (in the districts surveyed) actually spent in a special education setting. To use their reported excess cost factors as they are we would have to assume that our typical unserved handicapped child will require a program delivered entirely in a separate special education setting (either in a separate classroom in a regular school building or a separate building). We did assume this for our "high side" cost factors. For our "low-side" cost factors we assumed that the typical unserved student would spend 1/2 of his time in special educational settings and 1/2 in a regular setting. We computed a simple average of the per student cost of a full-time special education student and that of a regular student that were reported by Rossmiller et al.**

There are a few other serious problems with utilizing the factors reported in the Rossmiller study. The rather high figure they report for physically handicapped probably

*Rossmiller, Hale and Frohreich Educational Programs for Exceptional Children: Resource Configurations and Costs, National Education Finance Project Special Study #2 Department of Educational Administration University of Wisconsin, 1970. Tables showing the per pupil cost indices.

**This assumes, inter alia, that there are no diseconomies of scale involved as we move from a full-time special education mode to a part-time one.

TABLE 8

SPECIAL EDUCATION EXCESS COST FACTORS

BY HANDICAPPING CATEGORY

Type of Handicap	Cost Index*		Amount of Excess Cost per pupil. ($)**	
	High cost	Low cost	High cost	Low cost
Speech Impaired	1.2	1.1	$200	$100
Mentally Retarded	2.0	1.5	$1,000	$500
Learning Disabilities	2.1	1.5	$1,100	$500
Emotionally Disturbed	2.8	1.9	$1,800	$900
Crippled and Other Impaired	3.6	2.8	$2,600	$1,300
Deaf	3.5	2.2	$2,500	$1,200
Hard of Hearing	2.0	1.5	$1,000	$500
Visually handicapped	3.0	2.0	$2,000	$1,000
Deaf/Blind or other Multi Handicapped	2.7	1.8	$1,700	$800

*This is the ratio of the total cost (special education expenditure plus any regular education resources) used to educate a handicapped child to the total cost of educating a non-handicapped child.

**Derived by multiplying the quantity (cost index -1) by $1,000. $1,000 was used as an estimate of the countrywide average expenditure per pupil in regular instruction. The National Conference of State Legislatures reported that in 1975 this figure was $1,163. See their study of State Special Education Finance, p. 8.

Source: The cost index ratios are from Rossmiller, Hale and Frorich, Educational Programs for Exceptional Children: Resource Configuration and Costs. National Education Finance Project, (University of Wisconsin, 1970). The high side ratios are the median values of the ratio as across all the districts in their sample. This is considered "high" because of the probable less severe nature of the currently not served group. The low side estimates are explained in the text.

contains a structural building component that we have already accounted for in estimating the cost of the building accessibility subpart. Another problem is the relatively low cost factor for the multiple handicapped group. This probably reflects the particular mix of severity levels among the handicapped that existed in the surveyed school districts at the time of the study. In short, the reader must keep all these shortcomings in mind in assessing the validity of our cost estimates.

Table 9 contains estimates of the gross increase in expenditures required to reach all children currently classified as unserved. They range from high to low because of variation in the cost factors used, because of varying assumptions about the exact number of unserved children with learning disabilities, and because of the age range assumed to be covered.

At one extreme the gross cost increase may only be $1.3 billion dollars per year (or 48 percent of what we estimated was actually spent on special education resources for covered children in 1974-75).* This estimate assumes that the low side cost factors are relevant, that only school age children are covered and that a 1 percent incidence figure for Learning Disabled is used rather than the current official 3 percent figure. At the high extreme the gross cost increment is $4.8 billion dollars per year (or 155 percent of estimated current expenditures). This estimate assumes that the high side cost factors are relevant, that the target age range is 0-19 and that the official 3 percent incidence for Learning Disabled prevails.**

We have ignored the effect of shifts of already served children between partially reimbursed programs (under which a handicapped child attends a private school or institution) and ones that will be fully funded by public funds. At this time almost all states have some form of partial reimbursement scheme under which parents can obtain at least part of the cost of placing their child in a non-public special education school or institution. In some states the parent is free to choose between "free" public and partially reimbursed private (e.g., Maryland up until very recently), while in others the partial

*Whether or not the specialized resources being supplied to already covered children are adequate is also an issue. We have not addressed this because data on actual expenditures in 74-75 are not yet available. If we assume the figures we estimate are in fact adequate (which does not appear unreasonable; since we used our "high-side" cost factors to generate them) then we are underestimating gross cost increments if actual 74-75 expenditures are below them and overestimating if the reverse is true.

**The high side age range assumption is not consistent with the regulation as written. The regulation states that until 1978 the required age range coverage for handicapped children is the same as each state requires for its non-handicapped children. By 1978 the required range expands to 3-18 and by 1980 to 3-21. However this extension is only mandatory if the state does not have a specific law prohibiting extension beyond 6-18. Also the definition of the category Learning Disabled in the regulation is very narrow and it will probably preclude use of an incidence factor as large as 3%.

TABLE 9

ESTIMATES OF THE GROSS INCREASE IN EXPENDITURES FROM EXTENDING SPECIAL EDUCATION TO ALL UNSERVED CHILDREN
(In Billions of Dollars per Year and as Percent of Existing Special Education Expenditures)

Age Range	Estimated cost for children already being served in 74-75*	High-side cost factors		Low-side cost factors	
		Learning Disability IR=3%	Learning Disability IR=1%	Learning Disability IR=3%	Learning Disability IR=1%
0-19	$3.1	$4.8/155%	$3.7/119%	$2.3/74%	$1.8/58%
6-19	$2.9	$3.7/127%	$2.8/97%	$1.8/62%	$1.3/48%
0-5	.2	$1.1/550%	$0.9/450%	$0.5/250%	$0.4/200%

SOURCE: Table 7 and 8 and see discussion in the text.

*These are not based on what schools actually spent on special education in FY 75. They were constructed by multiplying the number currently served in each category (Table 7) by the corresponding high side cost factor in Table 8.

reimbursement option is only allowed when there are no public facilities available (e.g., Virginia at the present time). In phone interviews with special education specialists in both Virginia and Maryland the latest data on the fraction of all special education that came under partial reimbursement was obtained. The fraction (for the non-residential sector) were very small -- 1.8 percent for Virginia and about 3 percent for Maryland.* (The reimbursement program in Maryland is slightly more generous than in Virginia.) Thus the net impact of this omission on our gross cost estimates will not be significant.

Before we turn to a consolidation of our cost analysis for the three groups we will briefly comment on the benefits that can be expected from the additional coverage. Up to this point we have considered the evidence on the earnings capacity effects of reducing mislabeling and misassignment. The same authors who stress the importance of this factor (e.g., Hobbs) also emphasize the importance of not going too far in the direction of avoiding all labeling. They stress that there are types of children and handicapping conditions that can benefit greatly from the thoughtful application of high quality special education programs.

Unfortunately for the two most important (in terms of numbers) categories of unserved children -- emotionally disturbed and learning disabled -- no hard evidence on earnings capacity effects could be located in a short time frame. Only for the mentally retarded are there readily available findings.

Conley** reports that shortly after termination from State vocational rehabilitation programs young, mentally retarded adults who have been recorded as "rehabilitated" (which means they have successfully completed the training course and have been placed in a job) were earning hourly rates of pay about equal to that observed among general samples of mentally retarded individuals of the same age and severity category. Further, Conley believes that "A-priori we would expect that the average lifetime productivity of retarded rehabilitants would be less than our estimate for retarded workers generally since the very fact of referall for vocational rehabilitation is a manifestation of some vocational difficulties." On this basis Conley*** concluded that vocational rehabilitation

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*Ms. Lucile Anderson, Virginia State Department of Education and Mr. James Keim, Maryland State Department of Education

**Conley, Op. Cit., pp. 284-289

***It is important to note that the validity of the direction of the selectivity bias that Conley assumes is crucial to the credibility of his estimates. To a non-specialist in this area its validity is not intuitively obvious. Indeed a recent survey of all published benefit/cost studies of vocational rehabilitation concludes that it is not possible to conclude anything (either positive or negative) about the earnings effect of vocational rehabilitation training. (John Noble, "Economic Analysis of Rehabilitation Benefits: Can the 'State of the Art' Conclude Anything About Priorities," Paper Presented at the Annual Meeting of the American Association for the Advancement of Science, New York, Jan 26-31, 1975.) Overall time constraints precluded any additional work on this issue.

training had had an effect on the earnings capacity of the mentally retarded. Calling on his previous work relating to all rehabilitants (both mentally retarded and other disabling conditions) Conley comes to a "reasoned guess" that about 50 percent of the observed post program earnings of retarded rehabilitants can be attributed to the vocational rehabilitation training. On these assumptions Conley is able to show that the dollars spent on vocational rehabilitation training for mentally retarded young men are all recouped in the form of increased future earnings.

What is the significance of this finding? For the category Mentally Retarded (MR) alone it would appear highly relevant. The higher quality MR programs described by Rossmiller et. al., all consisted of very up-to-date vocational education training type situations. However, for the other two major sources of cost increase -- emotionally disturbed and learning disabled -- there is less certainty. The children involved in these categories may have a totally different set of ability/motivation problems than MR children do so that the apparent success of special education with the one group does not imply success with the other. However, the data we present in appendix A on the interaction between the earnings effect of disability and the level of education attained, suggests that rehabilitation type resources might have large effects on earnings capacity.

Summary and Alternative Phase-In Strategies

Our analysis has identified two sources of cost increase and one of cost decrease that will be associated with attaining the goal of free, adequate and appropriate education (in the least restrictive setting possible) for all handicapped children.

One source of cost increase involves extending the delivery of some form of education/training services to all severely and profoundly handicapped youngsters (primarily the mentally retarded and the emotionally disturbed), the so called "0-based reject policy." This cost will depend on how many are currently not being served and the educational cost per child of delivering the services in an institutional setting. Above we noted that expert opinion puts this per pupil cost at about $5,000 per year. The number of these children could range anywhere from 50,000 to 500,000 given the vagueness of existing data sources. We separated out this source of cost increase from the main body of our cost analysis because of the obvious compelling nature of the situation these children are in. Also, we showed that in addition to purely humanitarian benefits it was possible that pecuniary benefits (in the form of reduced maintenance costs) might be forthcoming if the training resulted in increased ability to cope with the simple tasks of everyday existence.

The other source of cost increase -- extension of free services to all the moderate and mildly handicapped not now being served -- was analyzed in terms of a few parameters and the results summarized in Table 9. The categories in the Table suggest a number of possible areas of policy options -- e.g., the costs of increasing the age range to cover younger and younger children should be balanced by increased benefits; considerable thought and study should be given to the estimation of prevalence rates for the Learning Disabled category; etc.

We stressed the "gross" aspect of these cost increments because the regulation is expected to have offsetting cost decreasing effects via the reduction of mislabeling and misassignment and the integration of physically handicapped children allowed by the greater building accessibility provided by subpart C. Precisely how large these offset factors will be cannot be determined without an elaborate study. Some crude calculations might be suggestive of possibilities. We noted above that a shift of 50,000 youngsters from residential to non-residential special educational setting could save around $150 million a year. If we also assume that 20 percent of all the mentally retarded, learning disabled and emotionally disturbed shift from special education day school programs to full-time regular settings then this could reduce costs by $235 million more. (This assumes the "low-side" cost factors in Table 8 are relevant.) The combined effect is to reduce the low-side gross increments in Table 6 by $385 million. If we assume that 50 percent of the MRs, LDs and EDs are shifted into full time regular settings then the low-side offset factor rises to $740 million. We also estimate an annual savings of $65 million from integrating physically handicapped children.*

In concluding this section of the analysis it is important to briefly note the implications of the dynamic dimension of the situation -- just how rapidly should the SEAs and LEAs be pushed toward the objective. PL 94-142 contains a definite time table, while the proposed regulation does not. In any event it should be recognized that increased rapidity of attainment is definitely not a free-good -- it will raise the overall cost associated with attaining the objective. The major source of bottlenecks would appear to be specially trained manpower. These bottlenecks can influence costs and benefits in two ways. First, the low quality of hurriedly put together programs (along with the bad feeling generated between federal and local officials) can hurt morale and possibly keep program quality below the optimum level long past the time at which a slower approach would have had the objective in place and at a much higher quality level. Second, it will simply cost more in terms of scarce resources used up to get to the objective faster -- e.g., teachers will have to work overtime to train special education teachers; people with related skills in other areas will have to be induced to enter special education as a career, etc.

On the other side it is also clear that increased total amounts of benefits are likely to flow from attaining the goal at an earlier date. What is important here is that the implementers of the policy be keenly aware of these trade-offs and remain as flexible as possible with regard to enforcing target dates while at the same time not letting school districts use this flexible stance to avoid compliance indefinitely.

*We estimated that there are about 250,000 physically handicapped youngsters receiving special education resources (Table 6). We also estimated that the excess cost incurred per student served is $2,600 (Table 8). If we assume that 50,000 of these children will be shifted to regular buildings for their regular education and that this reduces the annual cost of educating them by $1,300, then the annual savings would by $65 million.

V. HIGHER EDUCATION (Subpart E)

The major expense imposed on institutions of higher education by this regulation will be the cost of complying with the requirements of Subpart C on building accessibility. It is not expected that Subpart E,* which requires nondiscrimination in recruitment admissions and provision of courses and non-curricular services, will impose any significant additional costs.

The estimates of handicapped children in table 7 suggest that in any year no more than 200,000 college aged handicapped people are enrolled in degree granting institutions of higher education, and this amounts to less than 2% of their total enrollment.** After consultation with groups within the Department, it was concluded that none of the requirements of Subpart E will impost any substantial amount of costs on the recipients. And even if costs were to rise to a perceptible level, they would be balanced by benefits from the increased earnings capacity of those additional handicapped individuals who earn college degrees.

Non-Accessibility Provisions

Section 84.44(b) is concerned with course examination procedures for students with impaired sensory, manual, or speaking skills. It requires recipients to provide methods of assessing the academic achievement of such students which insure that the student's grades reflect his achievement, not his handicap. Thus, blind students must be allowed such alternatives to regular examination procedures as take-home examinations, the use of a reader, or, in the case of an essay examination, the opportunity to transcribe the questions into braille.

Paragraph (c) of section 84.44 provides that a recipient must ensure that no qualified handicapped student with impaired communicative skills be denied effective participation in its program because of lack of necessary auxiliary educational aids. (Individually prescribed or general purpose aids such as eyeglasses or wheel chairs are not, of course, included). In many cases, this provision will not impose any additional financial burden

*Subpart E generally follows the Department's Title IX regulation.

**Of the 6.6 million handicapped children (6-19) in table 7 we assume about 2.0 million will have both the potential for college attendance and require some accommodation. This assumes that all the mentally retarded will not be qualified and also that all those qualified among the speech impaired will not require any accommodation. Of the remainder, we assume that all persons in the physical disability categories will be qualified and that about 1.3 million of the learning disabled and emotionally disturbed will qualify. We then assume that 1/3 of the qualified will choose to go on to college. This means that an age cohort 6-19 will yield about 200,000 attendees aged 18-24 during any given year.

because the aids are provided by vocational rehabilitation agencies. Where such is not the case, however, the responsibility for providing auxiliary aids or their equivalent is borne by the recipient. For example, if a deaf student is unable to obtain the services of a classroom interpreter from the vocational rehabilitation agency, the recipient is responsible for providing an interpreter, a written version of class materials, or the opportunity to pursue independent study. Aids and services can often be provided at minimum expense by making them available in the recipient's library or other resource center. Comments from within the Department contained no estimate of the cost of this requirement. However, it is not believed it will be substantial as long as enforcement is done in a manner which allows flexibility in means of compliance.

Section 84.45 prohibits discrimination in the provision of student housing. Additional costs incurred in making a portion of the university's own housing accessible are included in the estimated costs of accessibility in section III of this statement. No additional costs, except insignificant administrative expenses, are anticipated from the requirement that recipients ensure that non-campus housing is, as a whole, offered in a nondiscriminatory manner.

The provision of health services without discrimination on the basis of handicap, required by section 84.46 (a), may, in some instances, impose minor additional costs. While this section does not require treatment for special handicapping conditions, some types of handicapping conditions do result in a greater than average need for routine health care. However, because the proportion of such students in any student body is quite low, any cost increase should be easily absorbed by the recipients; that is, the average per unit cost of providing health services to all students should not rise perceptibly.

Paragraph (a) of section 84.48 prohibits discrimination on the basis of handicap in the provision of physical education courses and athletics. A recipient who has an athletics program must operate the program so that handicapped students are afforded an opportunity to participate in comparable activities. Only minimal accommodation should be necessary for compliance. Because of the great variance in both types of handicapping conditions and in types of athletic activities, there is probably no handicapped person who cannot participate in at least one existing type of activity. At most, minor modifications of equipment would be necessary.

Thus, as stated in the introductory paragraph, increases in expenditures to institutions of higher education necessitated by this subpart are not expected to be significant. Those connected with modification of a sufficient number of existing buildings to comply with the requirement of program accessibility may be significant and these costs are covered in section III of this statement.

Benefits

In appendix A, evidence is presented on the very strong interaction between the level of formal education attained and the size of the effect of even severe disability on earnings capacity (see table A-8). Although these data refer to a group, disabled veterans, who obtained their disability after becoming young adults, the implications for the effect of education should also apply to physically disabled persons who are either born with the condition or have an accident very early in life. Again, one can only conjecture about the possible magnitude of the benefits from this source.

1970 Census data show that only 3.3% of persons aged 18-44 who reported that they were severely disabled* had attained a college degree or more. Other tables from this same source show very low reported labor force participation and annual earnings for this same subgroup of severely disabled persons. If we assume that the percentage of this group who finish college will increase to 6.0% and that college graduation increases the annual earnings of a severely disabled worker to that of the average partially disabled worker, then the annual flow of benefits from this source would eventually rise to about $100 million.** Enhanced educational opportunities can also be expected to increase the annual earnings of moderately and mildly handicapped persons, although the earnings increase will not be as great as with severely disabled persons, many more persons will be affected.

*The severely disabled reported in the 1970 Census were those individuals who said that their disability keeps them from holding any job at all. (See appendix A.)

**It will take a number of years for the educational attainment of the entire stock of severely disabled persons 18-44 to rise to that of 6.0% having college degrees. The total number involved is about 22,000 individuals who will be earning about $4,500 per year more on account of having gotten a college degree. After 10 years about half of the $100 million figure will have been reached.

VI. HEALTH AND SOCIAL SERVICES (Subpart F)

Subpart F prohibits discrimination on the basis of handicap in the provision of health and welfare services. Comments solicited from within the Department suggested that Subpart F will not have a substantial effect on the cost of providing health and social services. This is because these service systems are already structured to permit the participation of handicapped clients.*

Although the requirements of this subpart may, in a few cases, necessitate initial additional expenditures for staffing or equipment, such cases are of minor proportions. They should not require any substantial operational changes in existing health and social service systems. Moreover, to safeguard against imposing overly burdensome requirements especially with respect to small providers of health and social services, this subpart allows such factors as the size of the recipient's program to be considered in determining the appropriate corrective action to be taken by recipients. The flexibility thereby built into this subpart should further minimize its cost impact.

The provision relating to the education of persons institutionalized because of handicap may also necessitate initial additional expenditures. These expenditures are, however, included in the estimates contained in Section IV of this statement.

The subpart also requires recipients to compensate a handicapped patient who performs work which is either non-therapeutic or for which the institution would otherwise have had to hire an employee. Since this provision does not force recipients to use the labor of the handicapped, any outlays that are incurred can be assumed to be covered by economic benefits obtained by recipients.

The alternative to this provision is to permit the recipient to utilize patient labor without compensation. Although this alternative would lower the costs of compliance it has been held to be unconstitutional (see Souder v. Brenner, 367 F. Supp. 808 (D.D.C. 1973) and, as such, cannot be considered an actual alternative to the compensation provision as drafted.

*Note again that the costs associated with making buildings accessible have already been covered in Section III.

VII. SUMMARY AND CONCLUSIONS

lyzed in some detail the costs and benefits of the three major subparts that cover employment practices, building accessibility and the provision id secondary education. We found that in all cases there was evidence nefits that provide substantial offsets to the pecuniary cost involved. non-pecuniary benefits are not added, the balance of benefits and costs r of implementation of the regulation.

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VII. SUMMARY AND CONCLUSIONS

We have analyzed in some detail the costs and benefits of the three major subparts of the regulation that cover employment practices, building accessibility and the provision of elementary and secondary education. We found that in all cases there was evidence for pecuniary benefits that provide substantial offsets to the pecuniary cost involved. Indeed, even if non-pecuniary benefits are not added, the balance of benefits and costs appears in favor of implementation of the regulation.

The nature and quality of the evidence on benefits varies considerably. In some cases, it is more straightforward and convincing than in others, as in the case of cost reductions due to shifts to less restrictive settings. In others the empirical evidence is very sparse, but what there is, is highly suggestive, as in the case of benefits from eliminating discrimination in employment, and the benefits from reduced mislabeling and the improved quantity and quality of special education.

By far the most substantial source of cost increase comes from the extension of special education to all handicapped children not now served. We estimated that the annual gross cost increment could fall anywhere in the range $4.8 to $1.3 billion, depending on assumptions about cost factors, incidence of the condition "Learning Disabled", and the age range of the children covered.* The two other sources of possible significant cost increase are building accessibility and complying with the reasonable accommodation of subpart B. On the basis of our analysis it is doubtful that the additional annual cost from these two sources would ever exceed $100 million.**

If we take a simple average of our high and low side estimates for special education (i.e., $3.1 billion) then we estimate that these three sources together would create about $3.2 billion in annual costs. What magnitude of annual pecuniary benefits do we estimate? In our analysis of subpart D we estimated that as much as $800 million per year in special education expenditures might be saved because of shifts to less restrictive settings and reduced mislabeling of non-handicapped children. In the section on higher education, we estimated that the aggregate annual earnings capacity of the handicapped workers would be

*This range is slightly upward biased because of our treatment of very severely handicapped children in institutions. Since we analyzed this group separately (see discussion on page 40) we should net them out of our calculation of the annual gross cost increment. We have already assumed that these costs will be balanced by the special benefits involved. However, since the exact number of these children is not known we have not attempted this refinement.

**The total cost of making existing buildings accessible was estimated at about $350 million. This is approsimately equivalent to a perpetual annual cost of about $50 million. We estimated (appendix A) that perhaps a million disabled workers would be covered by subpart B. Even if we assume that the reasonable accommodation provision would result in an expenditure of $100 per year on one-half of them (which is probably an overestimate of numbers that would require special resources) that would only come to another $50 million.

increased by $100 million on account of the increase in college degrees among them. In our analysis of Subpart B we estimated that the elimination of employment discrimination might add as much as $1 billion to annual benefits. Thus a conservative figure would be $500 million. At this point benefits total to $1.4 billion, still $1.8 billion short of annual costs. We have not yet put a dollar amount on the increase in earnings capacity from the reduced mislabeling and the increased coverage of special education. It is likely that at any point in time at least 3 million individuals in the adult labor force were once handicapped children. Assume that on account of the achievement of full coverage and better labeling, about 1.5 million of them have their earnings capacity affected. If we further assume that on the average they all earn $1000 more per year, we then have another $1.5 billion in annual benefits, leaving a pecuniary cost deficit of only $.3 billion per year to be balanced against psychic benefits. This is the reason for our above conclusion on the near favorable balance even without adding in psychic benefits. Table 10 summarizes the above calculations.

TABLE 10

SUMMARY OF ESTIMATED ANNUAL PECUNIARY COSTS AND BENEFITS FOR ALL SUB-PARTS[d]
(Billions of dollars)

Sub-parts	(1) Costs[a]	(2) Benefits	(3) (1) − (2)
Employment practices	.05	.5	-.45
Program accessibility	.05	[b]	+.05
Elementary and secondary	2.3[c]	1.5	+.8
Higher Education	N.E.	.1	-.1
Health and Social Services	N.E.	N.E.	N.E.
Total	2.4	2.1	+.3

[a] For the parts other than program accessibility only non-accessibility costs are included.

[b] Benefits from program accessibility are included in the amounts for the other sub-parts.

[c] This is the average net increase $(4.8 - .8) + (1.3 - .8)/2$, where .8 is the reduction in cost due to shifts to less restrictive settings.

[d] This is before allowance for the effect of existing laws. See below.

N.E. = Not estimated, assumed to be negligible.

In using our analysis of overall benefits and costs the reader should keep in mind a number of factors that, although possibly significant to decisions about the impact of the regulation, are not highlighted by our analysis.

First, our estimates of costs and benefits measure only the "net" increment either in output gain (benefits) or resources used up (costs). They do not cover what economists call transfer and distribution effects. One important transfer effect in this case would be the (possible) reduction in income maintenance payments brought on by the increased earnings capacity of the handicapped. This effect is not added to benefits because the amount of saving to taxpayers is exactly balanced by the reduction in benefits of those who had been receiving the income maintenance payments. However from the taxpayers point of view it can be a significant consideration. Similarly an important distribution effect of the proposed regulation is reflected in the fact that the great bulk of the costs fall on state and local governments while the great bulk of the benefits accrue to private citizens -- handicapped persons.

Second, as already noted, this regulation duplicates and supplements to a substantial extent existing law. It would not be unreasonable to argue that, say, 50% of the elementary and secondary education effects and perhaps 25% of the remainder are properly attributable to existing laws. While it would be unrealistic to attempt to "fine tune" the estimates in Table 10, the final judgment on the effects of the regulation would have to be that both costs and benefits may be substantially below two billion dollars annually.

Third, there is one omission from the analysis that is perhaps worthy of note. No attempt has been made to estimate separately administrative and related costs of complying with its procedures (e.g., public notice, creation of new tests, preparing compliance plans, and the like). While such costs are certainly far smaller than the costs of providing services, they may well be in the range of tens of millions annually. It can be expected that public comments on the Notice of Proposed Rule-making will provide a basis for any changes necessary to assure that such costs are held to the minimum necessary to effectuate the substantive requirements of the law.

Finally, although we conclude that the regulation should be implemented, we do urge that consideration be given to some of the details of coverage, wording, and the dynamics of implementation. In particular we have highlighted the following areas: wording and content of the "reasonable accommodation" provision; precise coverage of the handicapping category "Learning Disabled;" decision on which agency of the State government should bear the non-educational costs of institutionalized handicapped children; the type and degree of flexibility in enforcing compliance and alternative timing and phase in strategies.

APPENDIX A

DISABILITY, DISCRIMINATION AND EARNINGS: A SURVEY/ANALYSIS

Tables 1-A through 4-A show data from the 1970 Census of Population on the numbers and characteristics of the disabled. The 1970 census asked the following question on disability: "Did you have a health or physical condition which limits the kind or amount of work you do?"

Many disabled individuals do not consider themselves limited in the amount or type of work they can do, so that the numbers in table 1 understate the number of disabled individuals that will be potentially eligible for protection under the proposed regulation. Data from the National Center for Health Statistics suggest that the number of adults with a disability is well over twice the number that responded to the 1970 Census question.*

However the disabled individuals reported in the 1970 Census may be more relevant for analyzing the impact of the proposed regulation. This is because the disabled workers who will be most helped by the regulation--those who are now suffering from employment discrimination--may make up a larger fraction of the individuals covered by the Census than they do of the total population of handicapped individuals.**

How many disabled individuals will have their earnings levels increased on account of the regulation? One can use the numbers in table 1-A and some additional assumptions to get a rough idea. For example, one possible set of assumptions and the corresponding estimates would be the following.

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*Wilder, Charles S., Prevalence of Selected Impairments, United States 1971, DHEW Publication No. (HRA) 75-1526, National Center for Health Statistics, May 1975.

**Either of two conditions could produce this result: (1) the probability of experiencing discrimination was (as of 1969) positively correlated with severity of disability and/or (2) the experience of job discrimination increases the probability that a disabled individual will answer "yes" to the Census question.

TABLE 1-A

INCIDENCE OF WORK DISABILITY BY SEVERITY OF DISABILITY, SEX AND AGE FOR PERSONS 18-64 YEARS OLD: UNITED STATES: 1970

	(1)	(2)	(3)	(4)	(5)	(6)
Age	Partially Work Disabled (000)	Totally Work Disabled (000)	Incidence: Percent of Population Work Disabled %	Percent of Population Reporting Totally Work Disabled %	Estimated */ Percent Totally Work Disabled %	Percent of Population Who Reported They Never Worked
Total (Both Sexes)						
All ages	7,160	4,931	10.8%	4.4%	4.0%	.9%
18-24	1,004	329	5.7	1.4	2.5	.7
25-54	4,185	2,358	9.3	3.3		
55+	1,972	2,242	22.8	12.1	11.5	2.1
Male						
All ages	4,356	2,010	11.7%	3.7%	3.2%	.5%
18-24	689	157	7.5	1.4	1.9	.4
25-54	2,470	911	9.9	2.7		
55+	1,178	941	24.2	10.7	9.9	.7
Female						
All ages	2,803	2,921	9.9%	5.0%	4.7%	1.3%
18-24	315	172	4.1	1.4	3.1	.9
25-54	1,694	1,448	8.6	4.0		
55+	793	1,302	21.5	13.4	12.9	3.4

*/Only counts those who both reported themselves totally worked disabled and said they were not at work or seeking work.

Source: U.S. Bureau of the Census, Census of Population: 1975, Subject Reports, Final Report PC (2)-6C, Persons with Work Disability, U.S. Govt. Printing Office, Tables 1 and 4.

TABLE 2-A

EMPLOYMENT STATUS AND EARNINGS IN 1969
BY DISABILITY STATUS, MALES 18-44:
UNITED STATES 1970

Employment status and earnings in 1969	Disability status: (1) Non-disabled	(2) Partially disabled	(3) (2)/(1)
Employment status:			
Total labor force (000)	28,689	1,811	-
Percent in total labor force	90.3	89.2	.987
Total employed (000)	26,886	1,735	-
Percent civilian labor force unemployed	3.7	5.7	1.540
Earnings in 1969:			
Mean earnings of those with earnings	$7,539	$6,065	.804
Percent with earnings	95.3	93.3	.979
Overall mean earnings	$7,185	$5,659	.788

Source: Same as table 1,
Census tables 4 and 9.

Assume that only the partially work disabled under 55 will have their earnings increased by the regulation. Also assume that only 1/2 of the partially disabled females under 55 would be affected in order to adjust for the sex differential in labor force participation. Finally, since State and Local Government and Medical and Health Services, which contain most of the grantees covered by the regulation, provide approximately 20 percent of total employment, assume that estimates can be made by multiplying combinations of the numbers in table 1 by .20 .*

These assumptions lead to an estimate of 833 thousand for the number of disabled workers that will have their earnings affected by the proposed regulation. If one includes all those under 55 (both partially and totally work disabled), the estimate will rise to 1.2 million; if we use a factor of .3 rather than .2 it also rises to 1.2 million, etc.

It is not clear if those who reported themselves as totally work disabled will be helped by the regulation. Almost all of these individuals reported no work experience during 1969

*Since the regulation also applies to subcontractors of covered grantees, a percentage greater than .20 is probably more appropriate. The fact that state and local governments also have a disproportionate number of "mental jobs" also indicates a factor larger than .20.

(compare columns 4 and 5 of table 1-A). On the other hand almost all of them reported that they had had work experience at some time previous to 1969 (compare columns 4 and 6 in table 1-A). Clearly some of these individuals will be in a position to be helped by the regulation as they recover somewhat from their conditions with time and rehabilitative services. However, it is not possible to conjecture, even roughly, how many this will be.

TABLE 3-A

OCCUPATIONAL STATUS BY DISABILITY STATUS
FOR EMPLOYED MALES 18-44
UNITED STATES 1970

Percent distribution	(1) Non-disabled	(2) Partially disabled	(3) (2)-(1)
Total	100%	100%	
Prof., tech. and kindred	17.0	13.4	-3.6
Mgrs. and admin. (except farm)	9.9	8.4	-1.5
Sales workers	6.6	6.7	-0.1
Clerical workers	7.9	9.4	+1.5
Craftsmen and kindred workers	21.3	18.9	-2.4
Operatives (except transp.)	14.4	15.6	+1.2
Transp. equip. oper.	6.3	6.7	+0.4
Laborers (except farm)	6.5	8.1	+1.6
Farm workers	3.2	3.9	+0.7
Service workers (except private H.H.)	6.8	8.5	+1.7
Private household workers	0.0	0.1	+0.1

Source: Same as table 1,
Census table 6.

By how much will the average disabled worker have his earnings capacity increased as a result of the proposed regulation? The data in table 2-A show that among those who report themselves as only partially work disabled, disability is not much of a barrier to employment per se. Labor force participation rates of non-disabled and partially disabled prime age males are very close. However, the quality of employment (both in terms of type and stability of the work) is another matter. Although the unemployment, occupational, (table 3-A) and earnings differentials between non-disabled and partially disabled are not enormous, they are still substantial and suggest that the proposed regulations might have a significant impact.

The data in table 4-A show that there is a moderate educational attainment differential between these two groups. This difference can account for about 3 percentage points of the

21.2 percentage point difference in overall mean earnings (last row and column of table 2-A).* Thus there is an 18 percent differential in earnings at the same educational level.** What part of this 18 percent is due to discrimination and therefore likely to be eliminated by the regulation? It is not possible to say precisely. But two other data sets, both relating to disabled veterans, give some further insight into the possible earnings effects of the regulation.

TABLE 4-A

YEARS OF SCHOOL COMPLETED BY DISABILITY STATUS, MALES 18-44: UNITED STATES 1970
(Percent distribution)

School completed	Disability status		
	Non-disabled	Partially work disabled	Totally work disabled
Less than high school grad	30.0%	39.0%	65.3%
High school grad	36.8	33.5	22.3
Some college or more	33.1	27.5	12.4
	100.	100.	100.

Source: Same as table 1, Census table 3.

Table 5-A presents some data from a special survey of disabled (and some non-abled) veterans. The purpose of the survey was to validate the earnings loss factors used by the Veterans Administration to determine the amount a disabled veteran receives as a disability allowance. Table 5-A shows both the actual earnings differential that existed in

*The three percent figure was estimated by using the method of "standardized averages." The earnings of all males, ages 25-34 by education cell were used to compute weighted averages of the two educational attainment distributions in table 4-A. These two averages differed by 3%. (See the 1970 Census of Population Subject Report, PC(2)-8B Earnings by Occupation and Education, table 1 for the earnings by education data used in this computation.)

**This is a very crude way of estimating the contribution of education differentials to earnings differentials by disability status. There is a large interaction effect between the earnings effects of disability and the level of education of the disabled person. (See below, table 8-A.) Thus although the average differential across all education cells is 18%, the differential among those with less than a high school education might be as much as 36% and that among college graduates close to 0%.

1967 between disabled and non-disabled veterans of the same age, education, and region of the country, as well as the rated percentage loss factor used by the VA at that time.

These loss factors represented the best judgment of medical people (around 1950) about how much earnings capacity was impaired by the particular type of disability. They reflect the mix of physical and mental requirements of the jobs available to veterans at that time. The fact that in 1967 actual earnings differentials were smaller than the rated loss factors (except for the mental disabilities) is probably related to the shifts in job content mix toward more mental and less physical tasks.*

Note the surprisingly small earnings losses for some of the very severe physical conditions. This suggests that many of the individuals who reported themselves as totally work disabled in the 1970 Census may be able to regain significant earnings capacity in later years.** Note also the striking difference in the relationship between rated and actual earnings loss percentages as between mental and physical disabilities. As noted above, this undoubtedly reflects differences in how much job restructuring can be used to accommodate these two types of disabling conditions. Any physical condition, no matter how severe, is specific and may only affect 10 or 15 percent of the tasks involved in most job categories. And physical disabilities need not effect the individual's ability to stand stress and deal extensively with individuals, both of which are key elements in most high paying job categories. Mental and emotional disabilities on the other hand are very general in character and may reduce one's capacity to perform under stress and in situations requiring extensive interaction with other people.

Our final data set although much less comprehensive does present some direct information on the effect of discrimination. It was obtained in a study of the employment problems encountered by disabled Vietnam era veterans. Information on employment status, earnings, experience with employers, etc., was collected on about 8,000 disabled veterans selected from the VA's Disability Record files. The typical disabled veteran in the sample had been out of the service for four years and was about 31-32 years old at the time of the survey. Detailed information on type and severity of disability were available from VA files so that all the material could be cross-tabulated by these variables.

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*Another factor here is that the VA is probably more concerned that the relative amounts received by different veterans corresponds to the relative severity of their disabilities, than they are about the match between earnings capacity loss and benefit amount.

**It is important to note that disabled veterans as a group have much stronger pecuniary work incentives than do disabled workers who are covered by other large federal disability programs. Disabled veterans, unlike beneficiaries under OASDI, do not stand to lose any of their disability benefits by working. Thus their participation and earnings performance may overstate what to expect from severely disabled non-veteran groups.

TABLE 5-A

RATING SCHEDULE EARNINGS LOSS FACTORS AND ACTUAL EARNINGS DIFFERENTIALS BETWEEN DISABLED VETERANS AND A CONTROL GROUP, BY SELECTED TYPES OF SEVERE DISABILITY CONDITIONS: SURVEY DONE IN 1969 AND EARNINGS ARE FOR 1967

Type of disability	(1) Rating schedule earnings loss factor (%)	(2) Observed earnings differentials: Earnings of control group ($)	(3) Observed earnings differentials: Earnings of Vets with disability ($)	(4) Observed earnings differentials: Percentage differential $\frac{(2)-(3)}{2} \times 100$
Physical and highly visible:				
Amputation: upper thigh	80.0	7,500	6,000	20.0%
Amputation: leg	60.0	7,404	5,975	19.3
Amputation: hand	90.0	7,517	5,540	26.3
Blindness - both eyes	100.0	7,403	1,177	84.1
90% blindness - both eyes	90.0	7,007	1,408	79.9
80% blindness - both eyes	70.0	7,209	3,518	51.2
Polio - 100% disabling	100.0	9,012	4,713	47.7
Polio - 60% disabling	60.0	9,041	7,287	19.4
Paralysis - both upper and lower - 90%	90.0	7,580	5,230	31.0
Paralysis - both upper and lower - 60%	60.0	7,195	5,612	22.0
Mental-Psychoneurotic:				
Anxiety state - 50%	50.0	7,045	3,945	44.0
Anxiety reaction - 70%	70.0	7,017	1,122	84.0
Anxiety reaction - 50%	50.0	6,984	1,676	76.0
Psychoneurotic reaction - 70%	70.0	7,166	1,218	83.0
Psychoneurotic reaction - 50%	50.0	7,222	2,022	72.0

Source: "Economic Validation of the Rating Schedule" Appendix in Veterans' Administration Proposed Revision of Schedule for Rating Disabilities -- Submitted to Committee on Veterans' Affairs United States Senate (U.S. Govt. Printing Office, Washington 1973).

Tables 6-A - 10-A contain some relevant findings from this survey. The data in tables 6-A and 7-A, although for a very different group, show the same patterns of labor force participation by age and severity of disability that we observed in the 1970 Census Data.*

TABLE 6-A

EMPLOYMENT AND LABOR FORCE STATUS FOR A SAMPLE OF DISABLED VIETNAM ERA VETERANS

Status	Percent
Currently employed	74.3
Looking for work	9.5
In school	7.8
No longer looking or never looked for work	8.3
(n = 7,728)	100.0

Source: Wilson, Richards and Bercini, Disabled Veterans of the Vietnam Era: Employment Problems and Prospects, HumRRO Technical Report 75-1, HumRRO Eastern Division, Alexandria, Va., Jan. 1975, p.26, Table III-1

Tables 9-A and 10-A contain some direct evidence on the effects of discrimination. Twenty-nine percent of those who had looked for work at some time since leaving the service reported at least one experience of discrimination. However, as table 10-A shows, holding constant severity level, the percentage who perceived discrimination varies sharply with the level of education. This fact combined with the striking difference by education level in the effects of disability on labor force activity (table 8-A), suggests that some of the instances of perceived discrimination may have occurred in situations in which the disabled veteran's productivity (even with reasonable accommodations) was lower than that of a non-disabled worker. The levels of perceived discrimination for the college graduate group are probably the most reliable since severity level has very little effect on employment opportunities for them.

It is difficult to translate the incidence of perceived discrimination into an overall average earnings differential. However, since so many veterans did not perceive discrimination, it is likely that some of the aggregative earnings differential by disability status (as in tables 2-A and 5-A) is not due to discrimination. However, the portion due to

*Note however that the labor force participation rate of young severely disabled veterans is still relatively high. This probably reflects in part the differential pecuniary work incentives confronting disabled veterans mentioned above.

discrimination (including the lack of making reasonable accommodations) could still be close to 100 percent. Many veterans may not have perceived discrimination in situations where the employer was not making some minor accommodation for his disabling condition.

TABLE 7-A

PERCENT NO LONGER LOOKING OR NEVER LOOKED FOR WORK BY AGE AND SEVERITY OF DISABILITY

Age	Severity of disability		
	Slight	Moderate	Severe
Under 30	2.5%	7.5	20.0
30-44	1.5	4.5	36.0
45 or over	13.0	15.0	53.0

Source: Same as table 6-A, p.32, table III-3, obtained by combining the percentages shown for "no longer looking for work since leaving service."

TABLE 8-A

PERCENT NO LONGER WORKING OR NEVER LOOKED FOR WORK BY EDUCATION AND SEVERITY OF DISABILITY, VETERANS UNDER 30 YEARS OF AGE

Education level	Severity of disability		
	Mild	Moderate	Severe
H.S. dropout	5.8	15.0	35.0
H.S. graduate	3.5	7.0	25.0
Attended college	1.5	6.5	12.0
College graduate	3.0	2.0	4.0

Source: Same as table 6-A, p.54. table III-24. Obtained by combining the percentages shown for "no longer looking for work" and "haven't looked for work since leaving service."

TABLE 9-A

PERCENT OF VETERANS WHO EVER LOOKED FOR WORK WHO THOUGHT SOME EMPLOYERS DISCRIMINATED AGAINST THEM, BY AGE AND SEVERITY OF DISABILITY

Age	Severity of disability		
	Mild	Moderate	Severe
< 30	22%	38	49
30-44	20	37	59
45+	16	11	46

Source: Same as table 6-A, p.214, table A-V-1.

TABLE 10-A

PERCENT OF VETERANS WHO EVER LOOKED FOR WORK WHO THOUGHT SOME EMPLOYERS DISCRIMINATED AGAINST THEM, BY EDUCATION AND SEVERITY OF DISABILITY: VETERANS UNDER 30 YEARS OF AGE

Education level	Severity of disability		
	Mild	Moderate	Severe
H.S. dropout	30.0%	48	60
H.S. graduate	23	40	48
Attended college	23	36	52
College graduate	12	19	25

Source: Same as table 6-A, p.215, table A-V-2.

APPENDIX B

COMPENDIUM OF STATE LAWS RELATING TO SPECIAL EDUCATION

STATE STATUTORY RESPONSIBILITIES FOR THE EDUCATION OF HANDICAPPED CHILDREN

July 1, 1975

This chart was prepared by The Development and Evaluation of State and Local Special Education Administrative Policy Manuals Project of the State-Federal Information Clearinghouse for Exceptional Children of the Council for Exceptional Children

STATE	TYPE OF MANDATION	DATE OF PASSAGE	COMPLIANCE DATE	AGES OF ELIGIBILITY	CATEGORIES EXCLUDED
Alabama	Full Planning and Programming	1971	1977	6-21	Profoundly Retarded
Alaska	Full Program	1974		From age 3	
Arizona	Selective Planning and Programming	1973	9/76	5-21	Emotionally Handicapped
Arkansas	Full Planning and Programming[1]	1973	9/79	6-21	
California	Selective			6-18[2]	"Educationally Handicapped" (Emotionally Disturbed, Learning Disabled)
Colorado	Full Planning and Programming	1973	7/75	5-21	
Connecticut	Full Planning and Programming	1966		4-21[3]	
Delaware	Full Program "Wherever Possible"			4-21	Severely Mentally or Physically Handicapped
District of Columbia	No Statute. Court Order: Full Program	1972	1972	From age 6	
Florida	Full Program		1973[4]	3-no maximum (13 yrs. guaranteed)	
Georgia	Full Planning and Programming	1968	9/75	3-20	
Hawaii	Full Program	1949		5-20	
Idaho	Full Program[5]	1972[5]		Birth-21	
Illinois	Full Program	1965	7/69	3-21[6]	
Indiana	Full Planning and Programming	1969	1973	6-18[7]	
Iowa	Full Program "If Reasonably Possible"	1974		Birth-21	
Kansas	Full Planning and Programming	1974	1979[8]	Developmentally Disabled: Birth-21	
Kentucky	Planning and Programming	1970	1974	9	Other than TMR
	(Petition for Trainable Mentally Retarded only)	1962		6-21	
Louisiana	Court Order–Orleans Parish only: Selective for Mentally Retarded. Otherwise, Mandatory	1972	1972	3-21[10]	Other than Mentally Retarded
Maine	Full Planning and Programming	1973	1975[11]	5-20	
Maryland	Full Planning and Programming	1973	1979[12]	13	
Massachusetts	Full Planning and Programming	1972		3-21	
Michigan	Full Planning and Programming	1971	9/73	Birth-25	
Minnesota	Full Program	7/72[14]	14	4-21, except MR (5-21) and ED (6-21)	
Mississippi	Permissive			Birth-21	
Missouri	Full Planning and Programming	1973		5-21	
Montana	Full Program[15]	1974	7/79	6-21	
Nebraska	Full Planning and Programming	1973	10/76[16]	5-18	
Nevada	Full Program	1973		5-18[17]	
New Hampshire	Full Program			Birth-21	
New Jersey	Full Program	1954[18]		5-20	
New Mexico	Full Planning and Programming	1972	9/76	6-21[19]	
New York	Full Program	1973	1973	5-21	Profoundly Retarded
North Carolina	Full Planning	1974	20	Birth-Adulthood[21]	
North Dakota	Full Planning and Programming	1973	7/80[22]	5-21[3]	
Ohio	Permissive			Birth-21	Other than crippled or Educable Mentally Retarded, Deaf, Blind, Partial hearing or visually
	Selective Planning	1972	1973	23	Trainable or Profoundly Mentally Retarded
Oklahoma	Full Program	1971	9/70	4-21[24]	
Oregon	Full Program	1973		EMR: 6-21	
				Others: Birth-21	
Pennsylvania	Court Order: Selective (Mentally Retarded Only)	1972	9/72	6-21[25]	Other than mentally retarded
	Full Planning and Programming	1956	1956	6-21	
Rhode Island	Full Program		1964[26]	3-21[26]	
South Carolina	Full Planning and Programming	1972	1977	6-21[27]	
South Dakota	Full Program	1972		Birth-21	
Tennessee	Full Planning and Programming	1972	9/74[3]	4-21	
Texas	Full Program[28]	1969	9/76[28]	3-21	
Utah	Full Program	1969		5-21	
Vermont	Full Program[29]	1972		Birth-21	
Virginia	Full Planning	1972	30	2-21	
Washington	Full Program	1971		6-21[31]	
West Virginia	Full Program	1974	1974	5-23[32]	
Wisconsin	Full Planning and Programming	1973	8/74	3-21	
Wyoming	Full Program	1969		6-21	

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[1] Current statute is conditional: 5 or more similarly handicapped children in district. However, a 1973 Attorney General's opinion stated that the law mandating full planning and programming was effective July, 1973.. If the state activates a kindergarten program for 5-year-old children, ages of eligibility will be 5-21.
[2] Permissive for children 3-21, except MR: 5 yrs. 8 mos.-21.
[3] 3-21 for hearing impaired. Lower figure applies to age of child as of Jan. 1 of the school year.
[4] 1973 law did not include profoundly retarded; however, a 1974 amendment brought these children under the provisions of the mandatory law. Compliance date for full services to these children is mandated for 1977-78.
[5] Earlier (1963) law was mandatory for all handicapped children except Trainable Mentally Retarded.
[6] 5-21 for speech defective.
[7] Permissive 3-5 and 19-21.
[8] "Developmentally Disabled" means retardation, cerebral palsy or epilepsy. For other disabilities, the state board is to determine ages of eligibility as part of the state plan. Compliance date is 7/1/74 for DD programs.
[9] Permissive: 3-6.
[10] Residents over age 21 who were not provided educational services as children must also be given education and training opportunities.
[11] In cases of significant hardship the commissioner of education may waive enforcement until 1977.
[12] Court order sets deadline in Sept., 1975.
[13] Services must begin as soon as the child can benefit from them, whether or not he is of school age.
[14] Date on which Trainable Mentally Retarded were included under the previously existing mandatory law.
[15] Statute now in effect is selective and conditional: at least 10 Educable Mentally Retarded, 7 Trainable Mentally Retarded, or 10 physically handicapped in school district. *Full* mandation becomes effective 7/1/79.
[16] Acoustically handicapped: 10/1/74.
[17] Aurally handicapped and visually handicapped: birth-18.
[18] Date of original mandatory law, which has since been amended to include all children.
[19] Child must be 6 years old by Jan. 1 of school year.
[20] Implementation date to be specified in preliminary state plan to be submitted to 1975 General Assembly.
[21] Deaf: to age 18--or to age 21 "if need exists."
[22] All children must be served as soon as they are identified as handicapped.
[23] Deaf children to be served at age four.
[24] 3-21 for blind, partially blind, deaf, hard of hearing.
[25] When programs are provided for pre-school age children they must also be provided for mentally handicapped children of the same age.
[26] For mentally retarded or multiply handicapped. Others, as defined in regulations. Compliance date established by regulations.
[27] 4-21 for hearing handicapped.
[28] The Texas Educational Agency is operating under the assumption that the law is mandatory, and has requested an opinion from the state Attorney General on this question. Compliance date is as established by state policy if the law does not specify a compliance date.
[29] Within the limits of available funds and personnel.
[30] 9/1/76 established by regulations.
[31] Permissive below 6 years.
[32] Permissive 3-4.

Definition of the kinds of mandatory legislation used by states:

Full Program Mandate: Such laws require that programs must be provided where children meet the criteria defining the exceptionality.

Planning and Programming Mandate: This form includes required planning prior to required programming.

Planning Mandate: This kind of law mandates only a requirement for planning.

Conditional Mandate: This kind of law requires that certain conditions must be met in or by the local education district before mandation takes effect (this usually means that a certain number of children with like handicaps must reside in a district before the district is obliged to provide for them).

Mandate by Petition: This kind of law places the burden of responsibility for program development on the community in terms of parents and interested agencies who may petition school districts to provide programs.

Selective Mandate: In this case, not all disabilities are treated equally. Education is provided (mandated) for some, but not all categories of disabilities.

The work performed herein was done pursuant to a grant from the Bureau of Education for the Handicapped, US Office of Education, Department of Health, Education, and Welfare. The opinions expressed herein, however, do not necessarily reflect the position or policy of the US Office of Education, and no official endorsement by the US Office of Education should be inferred.

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EXHIBIT TWO

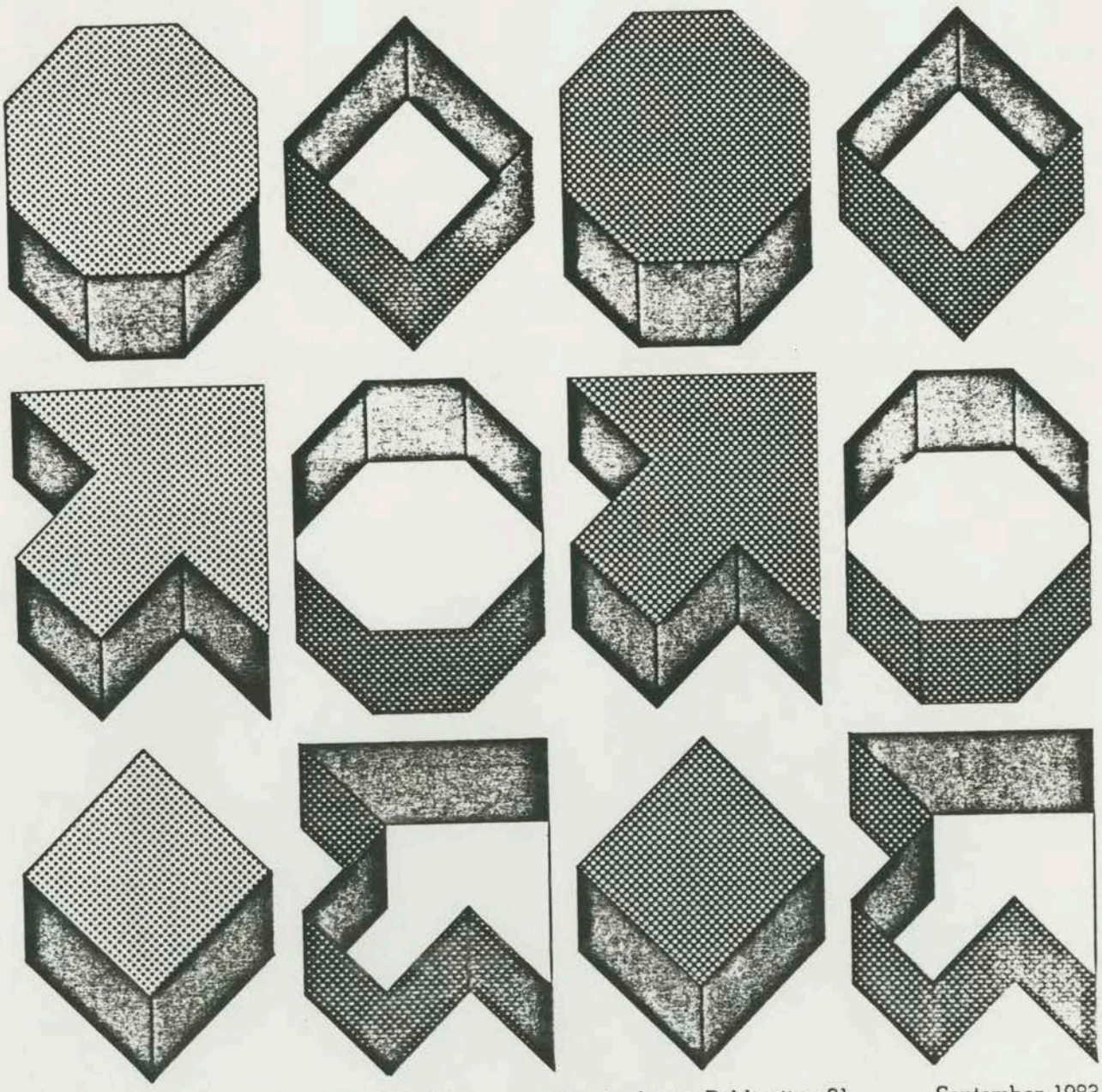
"COSTS AND BENEFITS OF FULL PARTICIPATION"

FROM

ACCOMMODATING THE SPECTRUM OF INDIVIDUAL ABILITIES

U.S. COMMISSION ON CIVIL RIGHTS

Accommodating the Spectrum of Individual Abilities



United States Commission on Civil Rights

Clearinghouse Publication 81

September 1983

Setting this goal, of course, does not mandate the means of its accomplishment. The recurring phrases, "full participation" and "total integration," however, delineate the ultimate target toward which we may direct specific conduct, policies, and practices and against which we may measure progress.

The Costs and Benefits of Full Participation

There are a number of approaches that our society could have chosen in working with the handicapped people. For instance, it might have done nothing and adopted a Social Darwinist view of survival of the fittest.[10] Or it might have continued to pursue the custodial approach of sheltering and segregating. Another alternative might have been to guarantee each handicapped person a certain minimum level of service and opportunity to ensure a minimally adequate quality of life. Under such a scheme, each handicapped person might have been assured an appropriate "niche" in society, with rights, for instance, to a job, housing, essential medical treatment, and transportation. Or perhaps an even more extreme alternative would have been to provide handicapped people with all the resources, assistance, and restructuring necessary to permit them to pursue any activity, vocation, and way of life they chose.

Instead of these alternatives, our society has chosen to try to provide handicapped people fair and equal chances to participate fully in economic competition and in opportunities for education, housing, transportation, health care, and other services and benefits available to most people.

Few would argue against a general goal of increasing handicapped people's participation, particularly in situations where it can be pursued cheaply and easily. Where costs appear to be more substantial, however, specific programs for achieving full participation by prohibiting discrimination and providing essential services are sometimes questioned. Many such initiatives, particularly civil rights laws proscribing discrimination against handicapped people, can be justified as matters of simple equity and basic human rights to which cost should not be used as an excuse. Generally, the cost of eliminating discriminatory practices does not justify continuing to discriminate, although cost may be a legitimate factor in choosing among vari-

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was interpreted as meaning "mainstreaming the world's 400 million disabled persons into every aspect of society." Stuart Eizenstat, Counselor to President Carter, address to the U.S. Planning Council for the U.N. Year of Disabled Persons, Washington, D.C., June 29, 1979, quoted in Stanley S. Herr, "Rights of Disabled Persons: International Principles and American Experiences," *Colum. Human Rights L. Rev.*, vol. 12 (1980). Handicapped persons and their advocates have concurred in such statements of the societal goal: "*Total Integration* is the number one priority." Max Starkloff, testimony, hearing before the Architectural and Transportation Barriers Compliance Board, Chicago, Ill., June 9-10, 1975, quoted in U.S., Architectural and Transportation Barriers Compliance Board, *Freedom of Choice: Report to the President and Congress on Housing Needs of Handicapped Individuals* (1976), vol. 2, pp. 1-2 , also quoted with approval in Kent Hull, *The Rights of Physically Handicapped People* (New York: Avon Books, 1979), pp. 33-34 (emphasis added). Some business leaders have also advocated the goal of full participation. *See* Bob Gatty, "Business Finds Profit in Hiring the Disabled," *Nation's Business*, August 1981, pp. 30-31, quoting Xerox Corporation President David J. Kearns.

[10] *See* Garrity v. Gallen, 522 F. Supp. 171, 207 (D.N.H. 1981).

ous alternatives for remedying discrimination.

Some have argued, however, that accommodations to permit participation by handicapped persons may simply cost too much for society to undertake without financial detriment to other citizens.[11] A 1979 *New York Times* editorial voiced such concerns:

> Do the 30 million Americans afflicted with physical or mental handicaps have a right of access, no matter what the cost, to all publicly sponsored activities? That is now a central question because the price of such access for the disabled promises to become very great.[12]

Time magazine discussed the costs of implementing accommodation requirements and concluded: "Overzealous enforcement could drive well-meaning institutions to distraction, if not out of business, and thus handicap society as a whole."[13]

In response to such reservations concerning costs, the Congress and regulatory agencies have carefully considered the cost implications of nondiscrimination requirements and other government initiatives seeking to ensure fuller participation by handicapped people. Practical experience has shown that the costs of legally required accommodations to allow handicapped people's participation are often nominal.[14] Projected costs have frequently proven to be overestimated and contrary to common sense and practicality.[15] Moreover, the courts and regulators have indicated that there are limits on the extent to which accommodation is legally required.[16] Excessive cost and undue hardship may, in certain circumstances, be legitimate excuses for not making a change or modification to enhance the participation of a handicapped person. The U.S. Supreme Court has indicated that recipients of Federal financial assistance are not always required to make accommodations for handicapped people that involve undue financial burdens.[17] Federal regulations indicate that the costliness of making an accommodation in employment can amount to an undue hardship that excuses an employer from the obligation to render the accommodation.[18] Similarly, three Federal courts have ruled that public transportation systems receiving Federal financial assistance are not legally required to make modifications

[11] Henry Fairlie, "We're Overdoing Help For the Handicapped," *The Washington Post*, June 1, 1980, p. D-1; Steven V. Roberts, "Harder Times Make Social Spenders Hard Minded," *The New York Times*, Aug. 3, 1980, p. E-3; Timothy B. Clark, "Regulation Gone Amok: How Many Billions for Wheelchair Transit?" *AEI Journal on Government and Society/Regulation*, March-April 1980, p. 47.

[12] Editorial, "Must Every Bus Kneel to the Disabled?" *New York Times*, Nov. 18, 1979, p. 18-E, quoted in John S. Hicks, "Should Every Bus Kneel?" *Disabled People as Second-Class Citizens*, ed. Myron G. Eisenberg, Cynthia Griggins, and Richard Duval (New York: Springer Publishing Co., 1982).

[13] "Helping the Handicapped: Without Crippling Institutions," *Time*, Dec. 5, 1977, p. 34.

[14] See chap. 6 in the section entitled "What Is Reasonable Accommodation?"

[15] See examples discussed in the introduction to this monograph.

[16] See chap. 6 in the section entitled "Limitations Upon the Obligation to Accommodate."

[17] Southeastern Community College v. Davis, 442 U.S. 397, 412-13 (1979).

[18] 45 C.F.R. §84.12(c)(3) (1982); 41 C.F.R. §60-741.6(d) (1982).

that are too massive or too costly in order to allow participation of handicapped riders.[19] In addition, a Federal court of appeals has indicated that a legal requirement to provide an appropriate public education for each handicapped child is not an obligation to provide "the best education. . .money can buy."[20] Thus, as interpreted by the courts and regulators, full participation and nondiscrimination do not mean the unlimited expenditure of funds to assist handicapped people.

The costs of permitting handicapped people to participate are most apparent in times of scarce resources. The courts have indicated, however, that budget shortages and financial hardships should not be disproportionately borne by handicapped citizens. In *Mills v. Board of Education of the District of Columbia,*[21] a Federal court declared:

> If sufficient funds are not available to finance all of the services and programs that are needed and desirable in the system then the available funds must be expended equitably in such a manner that no child is entirely excluded from a publicly supported education consistent with his needs and ability to benefit therefrom. The inadequacies of the District of Columbia Public School System whether occasioned by insufficient funding or administrative inefficiency, certainly cannot be permitted to bear more heavily on the "exceptional" or handicapped child than on the normal child.[22]

In *Board of Education of Hendrick Hudson Central School District v. Rowley,*[23] the U.S. Supreme Court quoted this language with approval as setting a "realistic standard."[24]

Any change from the status quo involves some costs. For social programs, it is appropriate to consider the long term, societal effects, rather than the short term costs of the program with regard to particular beneficiaries. When viewed in this broader perspective, the answer to concerns about the costs of full participation is that Congress, American business leaders, and other authorities have concluded that the costs of achieving full participation are more than offset by the resulting societal benefits.

From their inception, governmental programs for handicapped people have had interrelated economic and humanitarian purposes. The aim of early rehabilitation legislation—to enable handicapped people to go to work and contribute to the gross national product and the tax coffers—has remained a primary goal of subsequent legislative initiatives.[25] In 1963 President Kennedy significantly broadened the economic analysis of such programs when he cited long term dollar savings as a partial justification for his proposal of a comprehensive

[19] See Dopico v. Goldschmidt, 687 F.2d 644, 649–50 (2d Cir. 1982); American Pub. Transit Ass'n v. Lewis, 655 F.2d 1272, 1278 (D.C. Cir. 1981); Rhode Island Handicapped Action Comm. v. Rhode Island Pub. Transit Auth., 549 F. Supp. 592, 607 (D.R.I. 1982).

[20] Hessler v. State Bd. of Educ. of Md., 700 F.2d 134, 139 (4th Cir. 1983).

[21] 348 F. Supp. 866 (D.D.C. 1972).

[22] *Id.* at 876.

[23] 102 S.Ct. 3034 (1982).

[24] *Id.* at 3044, n. 15.

[25] *See* S. Rep. No. 318, 93d Cong., 1st Sess., *reprinted in*, 1973 U.S. Code Cong. & Adm. News 2076, 2082–85.

program of facilities and programs to address mental illness and mental retardation. In a special message to Congress, the President noted the humanitarian values his proposal would further but also stressed statistical data to emphasize the economic waste resulting from previous governmental policies toward mental health and mental retardation.[26] Since then, in various contexts, the rationale of programs for handicapped people has included analysis of their economic benefits to society.[27]

The degree to which cost-benefit analysis[28] may be applied appropriately to governmental programs for handicapped people has been the subject of controversy.[29] Many authorities agree the analysis of financial costs and benefits is an important consideration in selecting the

[26] "Special Message to the Congress on Mental Illness and Mental Retardation," Feb. 5, 1963, *Public Papers of the Presidents: John F. Kennedy, 1963*, no. 50, pp. 126, 127.

[27] *See, e.g.*, Comptroller General of the United States, "Returning the Mentally Disabled to the Community: Government Needs to Do More," Jan. 7, 1977, pp. 5–6; S. Rep. No. 318, 93d Cong., 1st Sess. *reprinted in* 1973 U.S. Code Cong. and Adm. News 2085–86; U.S., Department of Housing and Urban Development, "A Cost-Benefit Analysis of Accessibility," undated; *Discrimination Against Handicapped Persons: The Costs, Benefits and Inflationary Impact of Implementing Section 504 of the Rehabilitation Act of 1973 Covering Recipients of HEW Financial Assistance*, 41 Fed. Reg., app. B, 20,312 (1976); Congressional Budget Office, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches* (1979) p. 67; 119 Cong. Rec. 24,586 (1973) (statement of Sen. Cranston); H.R. Rep. 1149, 95th Cong., 2d Sess. 8, *reprinted in* 1978 U.S. Code Cong. & Ad. News 7312, 7320; Note, "Accommodating the Handicapped: The Meaning of Discrimination Under Section 504 of the Rehabilitation Act," *N.Y.U. L. Rev.*, vol. 55 (1980), pp. 900–01; Note, "Mending the Rehabilitation Act of 1973," *U. Ill. L. Rev.*, vol. 1982 (1982), pp. 727–28; American Bar Association, *Eliminating Environmental Barriers* (1979), p. 2.

[28] Given initial impetus by the many large government expenditures on flood control and national defense projects, cost-benefit analysis is a systematic approach expressing in numerical terms the costs and benefits of a particular project or program over a period of time. It seeks to minimize subjective evaluations of programs by providing objective, quantifiable measurements that accurately reflect true value. *See generally* Alice Rivlin, *Systematic Thinking for Social Action* (Washington, D.C.: The Brookings Institution, 1971), pp. 56–63; E.J. Mishan, *Cost-Benefit Analysis* (New York: Praeger, 1976); Abdul Qayum, *Social Cost-Benefit Analysis* (Portland: The Ha Pi Press, 1978); Edward M. Gramlich, *Benefit-Cost Analysis of Government Programs* (Englewood Cliffs, N.J.: Prentice-Hall, 1981). Pursuant to Executive Order 11291, major Federal regulations must be analyzed to assess their costs and benefits, and unless otherwise required by law, the most cost-effective alternative must be chosen. *See* Comptroller General of the United States, *Improved Quality, Adequate Resources, and Consistent Oversight Needed If Regulatory Analysis Is to Help Control Costs and Regulations* (1982), p. 1 (hereafter cited as GAO Report on Regulatory Analysis to Control Costs).

[29] *E.g.*, Note, "Accommodating the Handicapped: The Meaning of Discrimination Under Section 504 of the Rehabilitation Act," *N.Y.U. L. Rev.*, vol. 55 (November 1980), p. 901, n. 101; Note, "Mending the Rehabilitation Act of 1973," *U. Ill. L. Rev.*, vol. 1982 (1982), pp. 727–28; Elliott Krause, "Social Crisis and the Future of the Disabled," in *Disabled People as Second-Class Citizens*, pp. 276, 287–88; Lloyd Burton, "On Computing the Cost of Freedom," *Disability Rights Review*, vol. 1 (3) (March 1982), pp. 4–5; Leopold D. Lippman, *Attitudes Toward the Handicapped* (Springfield, Ill.: Charles C. Thomas Publisher, 1972), pp. 100–02; President's Committee on Mental Retardation, "A New Approach to Decision-Making in Human Management Services," *Changing Patterns in Residential Services for the Mentally Retarded*, ed. Robert B. Kugel and Wolf Wolfensberger (Washington, D.C.: 1969), pp. 369–72 (hereafter cited as "A New Approach to Decision-Making").

most efficient alternative among several choices for reaching a particular goal.[30] It is not so clear, however, that using cost-benefit analysis to select societal goals or evaluate social programs is appropriate. Cost-benefit analysis strongly favors quantifiable data, usually dollars and cents, on the theory that marketplace prices, fixed by supply and demand, are more reliable than subjective value judgments. Many social programs exist, however, because the marketplace does not adequately provide needed public services or because it is unfairly biased.

In such circumstances, the methodological premises or applications of cost-benefit analysis may encounter difficulty. Some authorities suggest the analysis of financial costs and benefits is appropriate only for evaluating the efficiency of various approaches for reaching a selected goal.[31] Since Congress has determined, as a matter of national policy, that handicapped persons are entitled as human beings to the opportunity of full participation in our society, economic factors should be considered only in determining how, and not whether, to pursue that goal. Moreover, most authorities seem to agree that financial data cannot adequately illustrate the societal value of programs without accounting for less easily quantifiable effects such as psychological, aesthetic, and humanitarian benefits.[32]

Nonetheless, numerous authorities have argued that economic advantages to society support the objective of handicapped people's full participation.[33] There is substantial evidence that the full participation approach renders significant economic benefits. In particular, governmental efforts to promote full participation for handicapped people in the areas of rehabilitation, employment, education, residential programs, and the elimination of environmental barriers

[30] *See, e.g.*, Qayum, *Social Cost Benefit Analysis*, pp. 9–10; Rivlin, *Systematic Thinking for Social Action*, pp. 56–60; GAO Report on Regulatory Analysis to Control Costs, pp. 12–13; Congressional Budget Office, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches*, pp. 3–5; Wolfensberger, "A New Approach to Decision-Making," p. 371; HUD Cost-Benefit Analysis, p. 4.

[31] *E.g.*, Rivlin, *Systematic Thinking for Social Action*, pp. 56–60; Gerben DeJong and Raymond Lifchez, "Physical Disability and Public Policy," *Scientific American*, vol. 248, no. 6 (June 1983), p. 49; Burton, "On Computing the Cost of Freedom," *Disability Rights Review*, March 1982, pp. 4–5; CBO, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches*, p. 4; HUD Cost-Benefit Analysis, p. 4; Qayum, *Social Cost Benefit Analysis*, pp. 102–05. *Cf.* Mishan, *Cost-Benefit Analysis*, pp. 382–89.

[32] *E.g.*, Rivlin, *Systematic Thinking for Social Action*, pp. 59–60; GAO Report on Regulatory Analysis to Control Costs, p. 11; A.B.A., *Eliminating Environmental Barriers*, p. 2; Burton, "On Computing the Cost of Freedom," pp. 4–5; Qayum, *Social Cost Benefit Analysis*, pp. 80–106.

[33] *See, e.g.*, Paul G. Hearne, statement, in *Civil Rights Issues of Handicapped Americans: Public Policy Implications*, consultation before the U.S. Commission on Civil Rights, Washington, D.C., May 13–14, 1980, pp. 198, 199–01 (hereafter cited as Hearne statement, *Consultation*); "Mending the Rehabilitation Act," pp. 727–28; Frank Bowe, *Rehabilitating America: Towards Independence for Disabled and Elderly People* (New York: Harper & Row, 1980); A.B.A., *Eliminating Environmental Barriers*, p. 2; H.R. Rep. 1149, 95th Cong. 2d Sess., *reprinted in* 1978 U.S. Code Cong. & Ad. News 7312, 7320; 119 Cong. Rec. S. 3320–21 (1972) (statement of Sen. Williams); Costs, Benefits and Inflationary Impact of Section 504, 41 Fed. Reg. 20364–65 (1976). *See also* "Remarks at the Annual Meeting of the President's Committee on Employment of the Handicapped," May 1, 1980. *Public Papers of the Presidents: Jimmy Carter, 1980*, pp. 808, 812.

have been advocated on economic grounds.

Rehabilitation

In signing the Rehabilitation Act of 1973, President Nixon described the rehabilitation program as having long been one of the most successful of all Federal grant activities.[34] Numerous studies document the success of vocational rehabilitation programs in providing training to enable handicapped people to achieve independence.[35] These studies find very high benefit-to-cost ratios, ranging from a low of 2 to 1 to as high as 86 to 1.[36] A 1978 House report declared:

> [S]everal cost-benefit analyses of the rehabilitation program have been conducted and although these analyses differ with respect to methods and assumptions, they all agree on one crucial fact—the benefits of the rehabilitation program are many times its costs. . . .
>
> The total annual earnings of 303,328 individuals rehabilitated in fiscal year 1976 are estimated at $1.347 billion—or a net increase of $1.101 billion over the earnings of these individuals at the time they entered the rehabilitation system.
>
> In addition to the annual earnings that rehabilitated individuals contribute to the GNP, the Rehabilitation Services Administration estimates that individuals, as a minimum, will be contributing approximately 6 percent of their total income to Federal, state and local governments in taxes. This contribution is, of course, in addition to the estimated savings to the government through the removal of clients from the public assistance roles, by reducing the dependency of clients or the removal of clients from institutions.[37]

Based solely on the increase in earnings due to vocational rehabilitation efforts, these economic advantages do not include such unquantifiable benefits as the psychological well-being of clients and their families.

Employment

Similar economic benefits have been attributed to government programs prohibiting handicap discrimination in employment. As chapter 2 noted, disproportionately fewer handicapped people than

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[34] "Statement on Signing the Rehabilitation Act of 1973," Sept. 23, 1973, *Public Papers of the Presidents: Richard Nixon, 1973,* no. 274, p. 823.

[35] *See* Sar A. Levitan and Robert Taggart, *Jobs for the Disabled* (Baltimore: Johns Hopkins Univ. Press, 1977), pp. 77-78; Richard V. Burkhauser and Robert H. Haveman, *Disability and Work: The Economics of American Policy* (Baltimore: Johns Hopkins Univ. Press, 1982), pp. 67-70, and authorities cited therein.

[36] Levitan and Taggart, *Jobs for the Disabled,* pp. 77-78.

[37] H.R. Rep. No. 1149, 95th Cong., 2d Sess. 8-9 *reprinted in* 1978 U.S. Code Cong. & Adm. News 7319-20.

nonhandicapped people have jobs.[38] Discrimination also results in lower earnings for handicapped employees. Studies have shown that a substantial portion of the difference in the wages of handicapped and nonhandicapped workers is due to labor market discrimination.[39] One study commissioned by the Department of Health, Education, and Welfare's Office for Civil Rights estimated that eliminating discrimination against handicapped people in HEW-funded grant programs would yield $1 billion annually in increased employment and earnings for handicapped people.[40] In addition to increasing the gross national product, it has been estimated that such an earnings increase by handicapped workers would result in some $58 million in additional tax revenues to Federal, State, and local governments.[41] Statistics indicate that funds generated by eliminating handicap discrimination would return more than 3 dollars for every dollar spent.[42]

Education

The costs and benefits of education programs for handicapped children have been closely scrutinized. A popular concern has been whether the costs involved in educating handicapped children are justified, particularly in times of budgetary constraints. One school district superintendent stated that educating handicapped children involves "fantastic costs" and that if such special education were provided, "other programs [would] suffer."[43] Although the data are sketchy, the costs of educating a handicapped child clearly exceed, on the average, the cost of educating a nonhandicapped

[38] Hiring of handicapped workers does not appear to pose a serious threat of displacing nonhandicapped workers. Handicapped people share with minorities and women the problem of being the first subjected to layoffs in times of economic slowdowns. In the current recession, for example, unemployment among handicapped persons has risen from a prerecession rate of 45 percent to a present estimated rate of 50–75 percent. President's Committee on Employment of the Handicapped estimates quoted in *Handicapped Rights and Regulations,* Apr. 5, 1983, p. 49.

[39] *See* William G. Johnson and James Lambrinos, "Employment Discrimination," *Society,* vol. 20, no. 3 (March–April 1983), p. 48; Barbara L. Wolfe, "How the Disabled Fare in the Labor Market," *Monthly Labor Review,* vol. 103, no. 9 (September 1980), pp. 51–52.

[40] *Discrimination Against Handicapped Persons: The Costs, Benefits and Inflationary Impact of Implementing Section 504 of the Rehabilitation Act of 1973 Covering Recipients of HEW Financial Assistance,* 41 Fed. Reg. 20,232 (1976). *See,* Note, "Mending the Rehabilitation Act of 1973," p. 727.

[41] S. Rep. No. 318, 93d Cong., 1st Sess., *reprinted in* 1973 U.S. Code Cong. & Ad. News 2076, 2086; 119 Cong. Rec. 24,586 (1973) (statement of Sen. Cranston). These 1973 estimates were based upon a minimum 5 percent of income tax rate. By 1978 the estimated rate had already risen to 6 percent. *See* H.R. Rep. No. 1149, 95th Cong. 2d Sess., *reprinted in* 1978 U.S. Code Cong. & Ad. News 7320.

[42] 119 Cong. Rec. 24,586 (1973) (statement of Sen. Cranston); *see also,* Note, "Mending the Rehabilitation Act," pp. 727–28.

[43] Steven V. Roberts, "Harder Times Make Social Spenders Hard Minded," *The New York Times,* Aug. 3, 1980, p. E–3, quoting District of Columbia School Superintendent Vincent E. Reed; *see also* 121 Cong. Rec. 25537 (July 29, 1975) (remarks of Rep. Bauman).

child.[44] The Education for All Handicapped Children Act (EAHCA) uses the term "excess costs" to describe the additional costs involved in educating handicapped pupils.[45] The portion of such expenses underwritten by the Federal Government has risen substantially in recent years, but State and local governments continue to bear the bulk of these costs.[46] Some commentators have suggested that the mandates imposed upon State and local education agencies by Federal programs such as the EAHCA are disproportionate to the relatively low levels of Federal funding provided.[47]

Since the enactment of the EAHCA, however, the paramount necessity of providing a free appropriate public education for each handicapped child is rarely questioned.[48] Congress and other

[44] The U.S. Department of Education has observed:

> No one knows for certain how much special education programming costs. While many reasons exist for this uncertainty, a primary factor is that education agencies seldom use accounting procedures that are based on particular types of handicapped children or unique instructional programs. Thus, costs involved in providing for such matters as personnel, services, and transportation for handicapped students are comingled with budget line categories for nonhandicapped students.

U.S., Department of Education, *To Assure the Free Appropriate Public Education of All Handicapped Children: Fourth Annual Report to Congress on the Implementation of Public Law 94-142: The Education for All Handicapped Children Act* (1982), p. 12 (hereafter cited as *1982 P.L. 94-142 Implementation Report).*

While EAHCA was being debated, some congressional leaders made reference to rough estimates that educating a handicapped child costs an average of twice as much as a nonhandicapped child. *See* 121 Cong. Rec. 25536 (1975) (remarks of Rep. Perkins); 121 Cong. Rec. 23703 (1975) (remarks of Rep. Brademas). A Rand Corporation study estimated that special education costs 2.17 times the cost of regular eduction. J.S. Kakalik and others, *The Cost of Special Education: Summary of Study Findings,* performed under contract with the U.S. Department of Education (Santa Monica, Calif.: Rand Corporation, 1981), p. 39. The accuracy and usefulness of such overall estimates are somewhat dubious, since special education costs vary dramatically from State to State, from rural to urban settings, from handicap to handicap, from school district to school district, and depend upon the level of supportive and professional services made available. *See* U.S., Department of Education, *To Assure the Free Appropriate Public Education of All Handicapped Children: Fifth Annual Report to Congress on the Implementation of Public Law 94-142: The Education for All Handicapped Children Act* (1973), p. 16 (hereafter cited as *1983 P.L. 94-142 Implementation Report);* Leigh S. Marriner, "The Cost of Educating Handicapped Pupils in New York City," *Journal of Education Finance,* vol. 3 (Summer 1977), pp. 82-97; Lloyd E. Frohreich, "Costing Programs for Exceptional Children: Dimensions and Indices," *Exceptional Children,* vol. 39 (1973), pp. 517-24; Richard A. Rossmiller and Lloyd E. Frohreich, "Expenditures and Funding Patterns in Idaho's Programs for Exceptional Children" (Madison, Wisc.: March 1979), pp. 1-7.

[45] 20 U.S.C. §1401(20) (Supp. V 1981).

[46] In 1977 grants awarded under EAHCA totaled $200 million out of an estimated total of over $7 billion in national expenditures for excess costs of special education. *1983 P.L. 94-142 Implementation Report,* pp. 16, 169. As of the fiscal year ending in September 1983, Federal grants under EAHCA will total over $930 million. Ibid., p. 169.

[47] *See* Robert B. Howsam, "Public Education: A System to Meet Its Needs," *Policy Studies Review,* vol. 2, no. 1 (January 1983), p. 102; Laurence E. Lynn, Jr., "The Emerging System for Educating Handicapped Children," *Policy Studies Review,* vol. 2, no. 1 (January 1983), p. 50; Richard A. Rossmiller, "Funding and Entitlement Under P.L. 94-142," *Perspectives on the Implementation of the "Education for All Handicapped Children Act of 1975,"* ed. Richard A. Johnson and Anthony P. Kowalski (Washington, D.C.: The Council of the Great City Schools, 1977), p. 30.

[48] Apart from EAHCA, a duty to provide handicapped children a free appropriate public educa-

commentators have concluded that expending funds for educating handicapped children is a sound economic investment. In enacting the act,[49] Congress thoroughly explored the costs of special education. It studied such issues as the degree of additional expense required for educating a handicapped student,[50] the costs of procedural requirements,[51] and the apportioning of Federal and State responsibility for underwriting such costs.[52] Congress also considered funding formulas for Federal reimbursement,[53] authorization levels and future funding expectations,[54] and the effect of economic hard times and budgetary constraints.[55] In addition, Congress repeatedly stressed the fiscal benefits accruing from such educational programs.[56] Numerous members of Congress expressed their conviction that funds expended to educate handicapped youngsters would be outweighed by the financial returns such education would produce.[57] The Senate report accompanying the act decried the billions of dollars spent to provide some handicapped people maintenance in a dependent and minimally adequate lifestyle, and concluded:

> With proper education services, many would be able to become productive citizens, contributing to society instead of being forced to remain burdens. Others, through such ser-

tion has been held to exist under other Federal statutes, Federal constitutional provisions, State constitutions, and State statutes. *See, e.g.*, New Mexico Ass'n for Retarded Citizens v. State of N.M., 678 F.2d 847, 853–55 (10th Cir. 1982); Mills v. Board of Educ. of D.C., 348 F. Supp. 866 (D.D.C. 1972); In re G.H., 218 N.W.2d 441 (N.D. 1974); Lora v. Board of Educ. of City of N.Y., 456 F. Supp. 1211, 1216–24, 1230–64 (E.D.N.Y. 1978); Frederick L. v. Thomas, 419 F. Supp. 960 (E.D. Pa. 1976).

[49] Pub. L. No. 94-42, 89 Stat. 773 (1975), 20 U.S.C. §1401 *et seq.*

[50] *See* 121 Cong. Rec. 23706–07 (1975) (remarks of Rep. Quie); 121 Cong. Rec. 25534 (1975) (remarks of Rep. Brademas); 121 Cong. Rec. 25536 (1975) (remarks of Rep. Perkins).

[51] 121 Cong. Rec. 19499 (1975) (remarks of Sen. Dole).

[52] *See* 121 Cong. Rec. 19494 (1975) (remarks of Sen. Javits); 121 Cong. Rec. 19498 (1975) (remarks of Sen. Dole); 121 Cong. Rec. 19502–03 (1975) (remarks of Sen. Cranston); 121 Cong. Rec. 23702 (1975) (remarks of Rep. Brademas); 121 Cong. Rec. 23705 (1973) (remarks of Rep. Jeffords); 121 Cong. Rec. 37410 (1975) (remarks of Sen. Randolph).

[53] *See* 121 Cong. Rec. 19494 (1975) (remarks of Sen. Javits); 121 Cong. Rec. 23703–04 (1975) (remarks of Rep. Brademas); 121 Cong. Rec. 23706 (1975) (remarks of Rep. Perkins); 121 Cong. Rec. 23709 (1975) (remarks of Rep. Biaggi).

[54] *See* 121 Cong. Rec. 23707 (1975) (remarks of Rep. Quie); 121 Cong. Rec. 25534 (1975) (remarks of Rep. Brademas); 121 Cong. Rec. 37025–26 (1975) (remarks of Rep. Perkins); 121 Cong. Rec. 37030 (1975) (remarks of Rep. Daniels); 121 Cong. Rec. 37413 (1975) (remarks of Sen. Williams).

[55] *See* 121 Cong. Rec. 37413 (1975) (remarks of Sen. Williams); 121 Cong. Rec. 25537 (1975) (remarks of Rep. Bauman); 121 Cong. Rec. 37029 (1975) (remarks of Rep. Michel).

[56] *See* 121 Cong. Rec. 37420 (1975) (remarks of Sen. Hathaway); 121 Cong. Rec. 37411 (1975) (remarks of Sen. Humphrey); 121 Cong. Rec. 25538 (1975) (remarks of Rep. Harris); 121 Cong. Rec. 25541 (1975) (remarks of Rep. Harkin); 121 Cong. Rec. 37418 (1975) (remarks of Sen. Biden); 121 Cong. Rec. 23709 (1975) (remarks of Rep. Minish); 121 Cong. Rec. 23703 (1975) (remarks of Rep. Brademas).

[57] *See* 121 Cong. Rec. 19492 (1975) (remarks of Sen. Williams); 121 Cong. Rec. 19505 (1975) (remarks of Sen. Beall); 121 Cong. Rec. 25538 (1975) (remarks of Rep. Harris); 121 Cong. Rec. 25541 (1975) (remarks of Rep. Harkin); 121 Cong. Rec. 37030 (1975) (remarks of Rep. Daniels); 121 Cong. Rec. 37411 (1975) (remarks of Sen. Humphrey); 121 Cong. Rec. 37417 (1975) (remarks of Sen. Javits); 121 Cong. Rec. 37418 (1975) (remarks of Sen. Biden); 121 Cong. Rec. 37420 (1975) (remarks of Sen. Hathaway).

munity are generally less expensive than large isolated state institutions."[67]

Transportation

The costs of eliminating barriers preventing use of public transportation by handicapped people are not small, but the benefits to society may be substantial.[68] Estimates by the Congressional Budget Office (CBO) of costs of removing transportational barriers in federally funded transit systems range from $4.4 billion to $6.8 billion.[69] A study by the American Public Transit Association estimated the total cost per rider of accessible fixed route bus service to be $717.[70] This estimate was based on an average estimated cost of five transportation systems, ranging from $59 per handicapped bus rider in San Diego to $1,440 per handicapped passenger in Milwaukee.[71] Some have suggested that high costs make accessible transportation infeasible.[72] One authority has contended that rules requiring accessible transportation for handicapped people "are so costly, and of benefit to such an infinitesimal minority of handicapped people, that they call into question the wisdom of the law and the common sense of those who administer it."[73]

The accuracy of high cost estimates of accessible transportation has been the subject of much controversy.[74] Figures have been criticized as underestimating potential handicapped ridership, overes-

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[67] Halderman v. Pennhurst State School and Hosp., 446 F. Supp. 1295, 1312 (E.D. Pa. 1978), *reversed on other grounds*, 451 U.S. 1 (1981). *See also* Note, "Mending the Rehabilitation Act of 1973," p. 728; 118 Cong. Rec. 3321 (1972) (statement of Sen. Williams).

[68] American Bar Association, *Eliminating Environmental Barriers* (1979), p. 2.

[69] These estimates vary according to which of three basic options is being considered for serving the transportation needs of handicapped people. The first option, the transit plan, would cost $6.8 billion to be spent over the next 30 years. Of this amount $2.2 billion would be spent on modifying, operating, and maintaining rail services. This $2.2 billion would also include the cost of providing door-to-door service in lieu of modifying stations and rail cars. The remaining $4.6 billion would be spent on modifying, purchasing, and maintaining transit buses. The second option, the taxi plan, would cost an estimated $4.4 billion over the next 30 years. This plan would entail a number of small modifications in existing rail and bus systems. The emphasis, however, would be on providing dial-a-ride vans for handicapped persons. The third option, the auto plan, would cost an estimated $6.4 billion over the next 30 years. This plan would provide dial-a-ride service, low-fare taxi services for severely handicapped persons unable to use transit, and financial assistance to purchase specially equipped vans for permanently handicapped people who use wheelchairs. *See* CBO, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches*, pp. xi–xiv. The second and third plans would involve ongoing funding for the alternative transportation services in perpetuity, while the first would impose primarily one-time modification costs spread over 30 years.

[70] American Public Transit Association, "Brief Review of Mobility Options in Bus Transportation," June 1980, p. 4.

[71] Ibid.

[72] *See* Editorial, "Must Every Bus Kneel to the Disabled?" *New York Times*, Nov. 18, 1979, p. 18–E; Timothy B. Clark, "Regulation Gone Amok: How Many Billions for Wheelchair Transit?" *AEI Journal on Government and Society/Regulation*, March–April 1980, p. 47.

[73] Clark, "Regulation Gone Amok," p. 42.

[74] *See* Note, "Accommodating the Handicapped: The Meaning of Discrimination Under Section 504 of the Rehabilitation Act," pp. 901–02, n. 107; 126 Cong. Rec. S8151 (daily ed. June 25, 1980) (remarks of Sen. Exon); 126 Cong. Rec. H11609 (daily ed. Dec. 2, 1980) (remarks of Rep. Howard); CBO, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches*, p. 67; 126 Cong. Rec. S8151 (daily ed. June 25, 1980); 126 Cong. Rec. S7673 (daily ed. June 25, 1980) (remarks of Sen. Cranston).

timating capital and maintenance expenses, miscategorizing capital expenditure costs not included in computing per rider costs for nonhandicapped persons, and inappropriately comparing one-time expenditures with perpetually ongoing expenses of certain transit options.[75] Congressional Budget Office estimates of transportation accessibility costs, for example, have been strongly challenged by the Department of Transportation (DOT).[76] DOT argues that CBO figures underestimate numbers of potential handicapped passengers and overestimate maintenance costs, loss of seating capacity, and other expenses.[77] DOT concludes that, based on more realistic figures, the accessible fixed route service is actually less expensive than other alternatives.[78]

Whatever the actual costs of accessible transportation may be, there are clearly some significant benefits associated with it. Beyond interfering with handicapped people's ability to engage in social, recreational, housing, and educational opportunities available to nonhandicapped people, transportation barriers have a serious negative effect on employment opportunities.[79] One commentator has estimated that 13 percent of unemployment among handicapped people is due to travel barriers and that 200,000 handicapped people would enter the work force if the barriers were eliminated, adding as much as $1 billion in annual earnings to the economy.[80] The Department of Transportation has estimated that approximately $800 million in net benefits to society would result from eliminating transportation barriers.[81] DOT has observed that savings in reductions of supplemental security income costs by increased employment opportunities for handicapped people through accessible transportation would alone account for as much as $276 million annual savings for the Federal treasury.[82] Recent Federal court decisions indicate that although "massive" modifications may not be required, federally funded public transportation systems are

[75] *See, e.g.,* Dennis Cannon and Frances Rainbow, "Full Mobility: Counting the Costs of the Alternatives" (Washington, D.C.: American Coalition of Citizens with Disabilities, 1980); 126 Cong. Rec. S7673-75 (daily ed. June 20, 1980) (remarks of Sen. Cranston); 126 Cong. Rec. S8155-56 (daily ed. June 25, 1980) (remarks of Sen. Cranston); 126 Cong. Rec. H11623 (daily ed. Dec. 2, 1980) (remarks of Rep. Simon); 126 Cong. Rec. H11624-26 (daily ed. Dec. 2, 1980) (remarks of Rep. Miller).

[76] U.S., Department of Transportation, "Comments on Congressional Budget Office Report on Urban Transportation for Handicapped Persons," 126 Cong. Rec. S7673-75 (daily ed. June 20, 1980).

[77] Ibid., p. S7674.

[78] Ibid.

[79] See discussion of barriers in chap. 2. A Federal court has noted: "Transportation furnishes the vital link which enables the handicapped to obtain access to jobs, education, medical care, recreation and the other activities of modern living." Rhode Island Handicapped Action Comm. v. Rhode Island Pub. Transit Auth., 549 F. Supp. 592, 595 (D.R.I. 1982).

[80] N. Reed, "Equal Access to Mass Transportation for the Handicapped," *Transp. L.J.,* vol. 9 (1977), pp. 170-71, n. 24. *Cf.* CBO, *Urban Transportation for Handicapped Persons: Alternative Federal Approaches,* p. 21.

[81] N. Reed, *Equal Access to Mass Transportation for the Handicapped,* p. 171.

[82] U.S., Department of Transportation, (draft) "Environmental Impact Statement Pursuant to Section 102(2)(c), P.L. 91-190: The Department of Transportation's Regulation Implementing Section 504 of the Rehabilitation Act of 1973," June 1980, p. viii-12.

obliged to make efforts to accommodate the needs of handicapped passengers.[83]

Architectural Barriers

Making buildings accessible also appears to be economically beneficial. For new buildings, the cost of barrier-free construction is negligible, accounting for only an estimated one-tenth to one-half of 1 percent of construction costs.[84] For modifications to existing buildings, the costs are higher. Such costs vary greatly, but the Architectural and Transportation Barriers Compliance Board has estimated that full accessibility costs an average of 3 percent of a building's value.[85] One study of the costs of removing architectural barriers from existing buildings found the resulting economic benefits ranged from seven times to several thousand times the size of the costs.[86]

Based on such considerations regarding the various cost issues affecting handicapped people, a number of authorities[87] contend that although the costs of integrating handicapped people into the mainstream of society may be substantial in some contexts, they are more than offset by the benefits that accrue to society.[88] This conclusion is reached even when nonpecuniary rewards such

[83] *See* Dopico v. Goldschmidt, 687 F.2d 644, 650 (2d Cir. 1982); Rhode Island Handicapped Action Comm. v. Rhode Island Pub. Transit Auth., 549 F. Supp. 592, 608 (D.R.I. 1982). *Cf.* American Pub. Transit Ass'n v. Lewis, 655 F.2d 1272 (D.C. Cir. 1981). These decisions are reviewed in chap. 6.

[84] *Discrimination Against Handicapped Persons: The Costs, Benefits and Inflationary Impacts of Implementing Section 504 of the Rehabilitation Act of 1973,* 41 Fed. Reg. 20333; Comptroller General of the United States, *Further Action Needed to Make All Public Buildings Accessible to the Physically Handicapped* (1975), p. 89; "ATBCB Minimum Guidelines and Requirements—Cost Information," drafted for Office of Management and Budget by Architectural and Transportation Barriers Compliance Board, Mar. 20, 1981, p. 5 (hereafter cited as ATBCB Report).

[85] ATBCB Report, p. 5. Projection of costs of accessibility are frequently significantly overestimated. See Jack R. Ellner and Henry E. Bender, *Hiring the Handicapped* (New York: Amacom, 1980), pp. 48–49; Rolf M. Wulfsberg and Richard J. Petersen, *The Impact of Section 504 of the Rehabilitation Act of 1973 on American Colleges and Universities,* Technical Report of the National Center for Education Statistics (Washington, D.C.: Government Printing Office, 1979), p. 57.

[86] U.S., Department of Housing and Urban Development, Office of Policy Development and Research, *A Cost-Benefit Analysis of Accessibility,* by Deborah J. Chollet (Washington, D.C.: Government Printing Office, 1979), p. 3. One source estimates that 1.7 to 11.6 percent of the U.S. population would benefit from the elimination of architectural barriers. U.S., Department of Housing and Urban Development, Office of Policy Development and Research, *Access to the Built Environment, A Review of Literature* (1979). Another authority estimates that environmental barriers cost society more than $100 billion per year and that these costs are escalating rapidly. Bowe, *Rehabilitating America,* p. 93.

[87] *See, e.g.,* Hearne statement, *Consultation,* pp. 198–201; "Mending The Rehabilitation Act," pp. 727–28; Bowe, *Rehabilitating America,* p. 93; American Bar Association, *Eliminating Environmental Barriers,* p. 2; H.R. Rep. 1149, 95th Cong., 2d. Sess., *reprinted in* 1978 U.S. Code Cong. & Ad. News 7312, 7320; 118 Cong. Rec. 3320–21 (1972) (statement of Sen. Williams); Costs, Benefits and Inflationary Impact of Section 504, 41 Fed. Reg. 20364–65 (1976). *See also* "Remarks at the Annual Meeting of the President's Committee on Employment of the Handicapped," May 1, 1980. *Public Papers of the Presidents: Jimmy Carter, 1980,* pp. 808, 812.

[88] Among the financial returns to which such authorities point are large savings in reduced expenditures of public benefits programs, such as social security disability insurance, supplemental security income (SSI), and State welfare, home relief, and aid to families with dependent children. Hearne statement, *Consultation,* p. 200; Bowe, *Rehabilitating America,* p. 4. This does not imply that handicapped recipients of such public benefits are not qualified or deserving of such

EXHIBIT THREE

SURVEY OF STATE LAWS

AND

INFORMATION ON STATE ACCESSIBILITY REQUIREMENTS

December, 1986

Nondiscrimination on the Basis of Handicap: A Survey of State Laws

Introduction

This is a survey of state nondiscrimination laws in the areas of employment, housing, places of public accommodation, education and accessibility. It is a survey of state laws which parallel the protections at the federal level extended under the Rehabilitation Act and the Architectural Barriers Act.

The following cites reference who is protected under the act (e.g., physically handicapped persons); where there is special coverage (e.g., public employment only), it is so noted.

Citations to "White Cane Laws," statutes traditionally providing criminal sanctions for discriminating against blind persons but now also extending in many cases to other handicapped persons, are included.

In certain states there are generic antidiscrimination laws related to employment or housing which may or may not cover handicapped persons. These laws are commonly referred to, for instance, as fair housing, fair employment, or civil rights laws. Where such laws protect handicapped persons, it is so noted.

In the accessibility area, coverage of the law to public and private buildings is noted. Also noted is the current architectural standard(s) in use. For standards, the following abbreviations are used: American National Standards Institute, Inc. (ANSI); Uniform Federal Accessibility Standards (UFAS); Architectural and Transportation Barriers Compliance Board (A&TBCB); and Building Operators Code Annotated (BOCA).

Where there is a blank space next to a category, it means the absence of a civil rights law in this area protecting handicapped persons. It could also mean that an existing civil rights law in the area does not extend protection to handicapped persons.

(NOTE: In all of these areas the laws and regulations are dynamic—ever changing. A cite, therefore, should be checked with legal counsel before reliance is placed upon it.)

	Employment	Public Accommodations	Housing	Education	Accessibility
Alabama	Public employment only. Physically handicapped. Ala. Code 21-7-1.	White Cane Law only. Ala. Code 21-7-3.	Physically handicapped. Ala. Code 21-7-8		Buildings used by the public or constructed with government funds. ANSI A117.1-1961/71. See also state code. Ala. Code 21-4-1.
Alaska	Physically handicapped. Alaska Stat. 18.80.220. Physically and mentally handicapped. Publicly funded employment. Alaska Stat. 18.47.010	Publicly funded facilities. Physically and mentally handicapped. Alaska Stat. 18.80.010. Prohibits discrimination in publicly funded programs and activities. White Cane Law. Alaska Stat. 18.55.020.	Publicly funded housing. Alaska Stat. 47.80.010, supra.	Publicly funded education. Alaska Stat. 47.80.010, supra.	State owned buildings. Public buildings. ANSI A117.1-1980. See also state code. Alaska Stat. 35.10.015.
Arizona	Physically handicapped. Ariz. Rev. Stat. 41-1463.	White Cane Law. 34-411.			Public and private facilities. Coverage of alterations expanding after January 1987. ANSI A117.1-1980. See also state code. Ariz. Rev. Stat. 34-401.
Arkansas	Public employment. Physically handicapped. Ark. Stat. Ann. 82-2601.	White Cane Law. Ark. Stat. Ann. 82-2602.	White Cane Law. Ark. Stat. Ann. 82-2605.		Publicly funded buildings. ATBCB-1981. See also state code. Ark. Stat. Ann. 14-627.
California	Physically handicapped. Also protects persons on the basis of medical condition. Cal. Code Government Sec. 12940.	Physically handicapped. Cal. Civil Code 54.1.	Within definition of public accommodation. Cal. Civil Code 54.1, supra.	Public and private facilities. See Cal. Code Government Sec. 4450.	

	Employment	Public Accommodations	Housing	Education	Accessibility
Colorado	Physically handicapped Col Rev Stat 24-34-402 White Cane Law Col Rev Stat 24-34-801.	Physically handicapped Col Rev Stat 24-34-802 White Cane Law Col Rev Stat 24-34-801.	Physically handicapped Col Rev Stat 24-34-802.	Within definition of place of public accommodations Col Rev Stat 24-3424-34-802	Public and private facilities Col Rev Stat 9-5-101.
Connecticut	Physically and mentally handicapped and mentally retarded Conn Gen Stat Ann 46a-60.	Physically handicapped and mentally retarded Conn Gen Stat Ann 46a-64.	Physically handicapped and mentally retarded Within definition of place of public accommodation Conn Gen Stat Ann 46a-64.	Physically handicapped and mentally retarded Conn Gen Stat 46a-75.	Public and private facilities ANSI A117.1-1961. See also state code, Conn Gen Stat 29-269.
Delaware		White Cane Law Del Code 9-2603	Physically and mentally handicapped Del Code 6-4601.	State owned, leased, planned public buildings ANSI A117.1-1980 See also state code, Del Code 29-73.	
District of Columbia	Physically and mentally handicapped D C Code 1-2512 White Cane Law D.C Code 6-1804.	Physically and mentally handicapped D.C Code 1-2515 White Cane Law D.C Code 6-1501.	Physically and mentally handicapped D.C. Code 1-2515 White Cane Law D.C. Code 6-1505.	Physically and mentally handicapped D.C. Code 1-2520	Public and private facilities See D.C. Code 6-1703.
Florida	Physically handicapped Fla Stat Ann 760.10 White Cane Law Fla Stat Ann 413.08	White Cane Law Fla. Stat Ann 413.08	Physically handicapped Fla Stat Ann 760.23 White Cane Law Fla Stat Ann. 413.08.	"Handicapped person." Fla Stat Ann 228.2001.	Facilities state owned or built on its behalf used by the public ANSI A117 1-1980 See also state code, Fla Stat Ann. 255.21.
Georgia	Physically and mentally handicapped Ga Code Ann 45-19-22	White Cane Law Ga. Code Ann. 30-4-1.	White Cane Law Ga Code Ann. 30-4-2		Public and private facilities ANSI A117.1-1980 See also state code Ga Code Ann 30-3-1
Hawaii	Physically handicapped Haw Rev Stat Tit. 21, Ch 378	White Cane Law Haw Rev Stat 347-13	Physically and mentally handicapped Haw Rev Stat 515-1, et seq		Public facilities Latest ANSI-A117 1 See also state code, Haw Rev Stat Title 9, Sec 103.50
Idaho	Physically handicapped State employment only Idaho Code Title 56, Ch.7.	White Cane Law Idaho Code 18-5812			Publicly owned or funded facilities ANSI A-117.1, as amended See also state code Idaho Code Title 39, Sec. 3601
Illinois	Physically and mentally handicapped Ill Code 68-2-102	Physically and mentally handicapped Ill Code 68-5-102 White Cane Law Ill. Code 23-3363	Physically and mentally handicapped Ill Code 68-3-102		Public and private facilities See also state code, Ill Code 111 1/2, Sec 3711 (relies heavily on ANSI A117.1-1980)
Indiana	Physically and mentally handicapped Ind Code Ann. 22-9-3-1.	Physically and mentally handicapped Ind Code Ann. 22-9-3-1 White Cane Law Ind Code Ann 16-7-5-2.	Physically and mentally handicapped Ind Code Ann. 22-9-3-1.	Public and private facilities Ind Code Ann. 20-11-1-17.	
Iowa	Physically and mentally handicapped Iowa Code 601A.6 White Cane Law Iowa Code 601D.2.	Physically and mentally handicapped Iowa Code 601A.7 White Cane Law Iowa Code 601D.4	Physically and mentally handicapped Iowa Code 601A.8		Public and private facilities ANSI A117 1-1980 See also state code, Iowa Code 104A

	Employment	Public Accommodations	Housing	Education	Accessibility
Kansas	Physically handicapped Kans. Stat. 44-1009.	Physically handicapped. Kans. Stat. 44-1009. White Cane Law. Kans. Stat. 39-1101.		Physically handicapped Public institutions Kans. Stat. 44-1009.	Public and private facilities. ANSI A117.1-1980. See also state code. Kans. Stat. Ch 13, Sec 68-1301.
Kentucky	Physically handicapped Kent. Rev. Stat. 207.130.	White Cane Law. Kent. Rev. Stat. 208.500.	Physically handicapped Kent. Rev. Stat. 207.160.		Public and private facilities. ANSI A117.1-1980. See also state code. Kent. Rev. Stat. 198.50
Louisiana	Physically or mentally handicapped La. Rev. Stat. 2254.	White Cane Law. 46 La. Rev. Stat. Secs. 1652, 1654	Physically and mentally handicapped. 46 La. Rev. Stat. 2254. White Cane Law. 46 La. Rev. Stat. Sec. 1653.		Public and private facilities. ANSI 1977 (as 1980) See also state code. 40 La. Rev. Stat. 1731.
Maine	Physically and mentally handicapped 5 Maine Rev. Stat. 4571.	Physically and mentally handicapped 5 Maine Rev. Stat. 4591. White Cane Law. 17 Maine Rev. Stat. 1311.	Physically and mentally handicapped 5 Maine Rev. Stat. 4581.		Publicly owned or funded facilities. ANSI A117.1-1980. See also state code. 25 Maine Rev. Stat. 2701.
Maryland	Physically and mentally handicapped Ann. Code Md. Art. 49B, Sec. 16. White Cane Law. Ann. Code Md. Art. 30, Sec. 23.	Physically and mentally handicapped. Ann. Code Md. Art. 49B, Sec. 6. White Cane Law. Ann. Code Md. Art. 30, Sec. 23.	Physically and mentally handicapped. Ann. Code Md. Art. 49B, Sec. 20. White Cane Law. Ann. Code Md. Art. 30, Sec. 23.	Physically handicapped. Ann. Code Md. Art. 6, Sec. 105.	Public and private facilities. ANSI A117.1-1980. See also state code. Md. Ann. Code Art. 41, Sec. 257JK
Massachusetts	Physically and mentally handicapped. Ann. Laws Mass. 151B, Sec. 4.	Physically handicapped. Ann. Laws Mass. 272, Sec. 98, 98A. White Cane Law. Ann. Laws Mass. Sec. 92A.	Physically and mentally handicapped. Ann. Laws Mass. 151, Sec. 4.	Blind and deaf. Ann. Laws Mass. 151c, Sec. 3(a).	Public and private facilities. Ann. Laws Mass. 22, Sec. 13A, 143, Sec. 3W
Michigan	Physically and mentally handicapped. Mich. Rev. Stat. 37.1202.	Physically and mentally handicapped. Mich. Rev. Stat. 37.1302. White Cane Law. Mich. Rev. Stat. 780.502c.	Physically and mentally handicapped. Mich. Rev. Stat. 37.1502. White Cane Law. Mich. Rev. Stat. 780.502c.	Physically and mentally handicapped. Mich. Rev. Stat. 37.1402.	Public and private facilities. ANSI A117.1-1961/71. See also state code. Mich. Rev. Stat. 125.1351.
Minnesota	Physically and mentally handicapped. Minn. Stat. Ann. 363.02	Physically and mentally handicapped. Minn. Stat. Ann. 363.03. White Cane Law. Minn. Stat. Ann. 604.02.	Physically and mentally handicapped. Minn. Stat. Ann. 363.03. White Cane Law. Minn. Stat. Ann. 604.02.	Physically and mentally handicapped. Minn. Stat. Ann. 363.03.	Public and private facilities. ANSI A117.1-1961/71. See also state code. Minn. Stat. Ann. 471.465
Mississippi	Physically handicapped. State employment only. Miss. Code 25-9-149. White Cane Law. Miss. Code 43-6-15.	White Cane Law. Miss. Code 43-6-5	White Cane Law. Miss. Code 43-6-3 ("public facilities").		Publicly owned or funded facilities. ANSI A117.1-1980. UFAS. See also state code. Miss. Code 43-6-101.
Missouri	Physically and mentally handicapped. Mo. Ann. Stat. Sec. 213.055.	Physically and mentally handicapped. Mo. Ann. Stat. Sec. 213.065. White Cane Law. Mo. Ann. Stat. Sec. 209.150-160.	Physically and mentally handicapped. Mo. Ann. Stat. Sec. 213.065.		Publicly owned or funded. ANSI A117.1-1961/71. See also state code. Mo. Ann. Stat. Sec. 8.610.
Montana	Physically and mentally handicapped. Mont. Code Ann. 49-2-303. White Cane Law. Mont. Code Ann. 49-4-202.	Physically and mentally handicapped. Mont. Code Ann. 49-2-304. White Cane Law. Mont. Code Ann. 49-4-211.	Physically and mentally handicapped. Mont. Code Ann. 49-2-305. White Cane Law. Mont. Code Ann. 49-4-212.	Physically and mentally handicapped. Mont. Code Ann. 49-2-307.	Public and private facilities. UFAS. See also state code. Mont. Code Ann. 50-60-201

	Employment	Public Accommodations	Housing	Education	Accessibility
Nebraska	Physically and mentally handicapped. 48 Neb Rev. Stat. 1101.	White Cane Law. 20 Neb Rev. Stat. 139.	White Cane Law. 20 Neb. Rev. Stat. 105.		Public and private facilities. ANSI A117.1-1961/71. See also state code. 72 Neb Rev Stat. 1101
Nevada	Physically handicapped. Nev Rev Stat. 613.330.	White Cane Law. Nev. Rev. Stat. 651.070.	Persons who use blind and deaf dogs. Nev. Rev. Stat. 118.105.	Within definition of place of public accommodation in White Cane Law. Nev. Rev. Stat. 651.050.	Publicly owned or funded facilities. ATBCB-1982. See also state code. Nev. Rev Stat. 338.180
New Hampshire	Physically and mentally handicapped. N.H. Rev Stat. Ann. 354-A.	Physically and mentally handicapped. N.H. Rev. Stat. Ann. 354-A. White Cane Law. N.H. Rev Stat. Ann. 167-C:2, 167-D.	Physically and mentally handicapped. N.H. Rev. Stat. Ann. 354-A.	Physically and mentally handicapped. N.H. Rev. Stat. Ann. 354-A.	Public facilities. N.H. Rev Stat. Ann. 155-B-6, 275-C:10.
New Jersey	Physically and mentally handicapped. N.J. Rev Stat. 10:5. White Cane Law. N.J. Rev Stat. 10:5:29.	Physically and mentally handicapped. N.J. Rev. Stat. 10:5. White Cane Law. N.J. Rev. Stat. 10:5:29.	Physically and mentally handicapped. N.J. Rev. Stat. 10:5. White Cane Law. N.J. Rev. Stat. 10:5:29.	Physically and mentally handicapped. Within definition of place of public accommodation. N.J. Rev Stat. 10:5.	Public and private facilities. ANSI A117.1-1980. UFAS. ATBCB-1982. See also state code. N.J. Rev. Stat. 52:32-6.
New Mexico	Physically and mentally handicapped. N.M Stat. Ann. 28-1-7.	Physically and mentally handicapped. N.M. Stat. Ann. 28-1-7. White Cane Law. N.M. Stat. Ann. 28-7-3.	Physically and mentally handicapped. N.M. Stat. Ann. 28-1-7.		Publicly owned facilities. ANSI A117.1-1980. See also state code. N.M. Rev Stat. 60-13-44.
New York	Physically and mentally handicapped. Exec. Law Sec. 296. White Cane Law. Civil Rights Law Sec. 47-a.	Physically and mentally handicapped. Exec. Law Sec. 296. White Cane Law. Civil Rights Law Sec. 47.	Physical, Mental. Exec. Law Sec. 296. White Cane Law. Civil Rights Law Sec. 47.	Physically and mentally handicapped. Exec. Law Sec. 296. White Cane Law. Civil Rights Law Sec. 47.	Public and private facilities. ANSI A117.1-1980. New York Public Buildings Law Sec. 50. Transportation Law Sec. 15b.
North Carolina	Physically and mentally handicapped. N.C. Gen. Stat. 168A-5, 143-422.2.	Physically and mentally handicapped. N.C. Gen. Stat. 168A-5.	Physically and mentally handicapped. (Within public accommodations.) N.C. Gen. Stat. 168A-6.	Physically and mentally handicapped. N.C. Gen. Stat. 168A-7.	Publicly used. ANSI A117.1-61/71. See also state code. N.C. Gen Stat. 143-138.
North Dakota	Physically and mentally handicapped. N.D. Century Code 14-02.4.	Physically and mentally handicapped. N.D. Century Code 14-02.4. White Cane Law. N.D. Century Code 25-13-02.	Physically and mentally handicapped. N.D. Century Code 14-02.4.	Physically and mentally handicapped. N.D. Century Code 14-02.4.	Publicly owned facilities. ANSI A117.1-1961/71. See also state code. N.D. Century Code 23-13-12 and 13.
Ohio	Physically and mentally handicapped. Ohio Rev. Code Sec. 4112.	Physically and mentally handicapped. Ohio Rev. Code Sec. 4112. White Cane Law. Ohio Rev. Code Sec. 955.43.	Physically and mentally handicapped. Ohio Rev. Code Sec. 4112.	Physically and mentally handicapped. Postsecondary education. Ohio Rev. Code Sec. 4112.	Public and private facilities. ANSI A117.1-1980 and BOCA. See also state code. Ohio Rev Code Sec. 3781.111
Oklahoma	Physically and mentally handicapped. Ok. Stat. Ann. Title 25, Sec. 1301.	Physically and mentally handicapped. Ok. Stat. Ann. Title 25, Sec. 1402. White Cane Law. Ok. Stat. Ann. Title 7, Sec. 16.	Physically and mentally handicapped. Ok. Stat. Ann. Title 25, Sec. 1451.	Within definition of places of public accommodation. Ok. Stat. Ann. Title 25, Sec. 1402.	Publicly owned and funded buildings. BOCA. See also state code. Ok. Stat. Ann. Title 61, Sec. 11.
Oregon	Physically and mentally handicapped. Or. Rev. Stat. 659.400.	Physically and mentally handicapped. Or. Rev. Stat. 659.425. White Cane Law. Or. Rev. Stat. 346.610.	Physically and mentally handicapped. Or. Rev. Stat. 659.430. White Cane Law. Or. Rev. Stat. 346.630.	Physically and mentally handicapped. Or. Rev. Stat. 659.150.	Public and private facilities. ANSI A117.1-1980. See also state code. Or Rev Stat. 447.210.

	Employment	Public Accommodations	Housing	Education	Accessibility
Pennsylvania	Physically and mentally handicapped. 43 Penn. Stat. Ann. Sec. 955.	Physically and mentally handicapped. 43 Penn. Stat. Ann. Sec. 955.	Physically and mentally handicapped. 43 Penn. Stat. Ann. Sec. 955.	Within definition of public accommodation. 43 Penn. Stat. Ann. Sec. 955.	Public and private facilities. ANSI A117.1-1980. See also state code. 71 Penn. Stat. Ann. Sec. 1455.
Rhode Island	Physically and mentally handicapped. Gen. Laws. R.I. 28-5-7.	White Cane Law. Gen. Law R.I. 40-9-1. See also Gen. Law. R.I. 42-87-1 prohibiting discrimination against any qualified physically handicapped person in any program, activity, or service regulated or funded by the state.	Physically handicapped Gen. Laws. R.I. 34-37-1. See also Gen. Law. R.I. 42-87-1, supra.	See Gen. Laws. R.I. 42-87-1.	Public and private facilities. ANSI-1980. See also state code. Gen. Laws. R.I. 23-27.3-100.15, 37-8-15.
South Carolina	Physically and mentally handicapped. S.C. Code 43-33-530. See also S.C. Code 43-33-210 on testing for persons unable to use written or visual materials.	Physically and mentally handicapped. S.C. Code 43-33-530. White Cane Law. S.C. Code 43-33-30.	Physically and mentally handicapped. S.C.Code 43-33-530. See also S.C. Code 43-33-70.	Physically and mentally handicapped. S.C. Code 43-33-530.	Public buildings, including publicly or federally funded. Latest ANSI and Southern Building Code. See also S.C. Code 10-5-210.
South Dakota	Physically and mentally handicapped. S.D.C.L.A. 20-13-10.	Physically and mentally handicapped. S.D.C.L.A. 20-13-23. White Cane Law. S.D.C.L.A. 20-13-23.1.	Physically and mentally handicapped. S.D.C.L.A. 20-13-50.	Physically and mentally handicapped. S.D.C.L.A. 20-13-22.	Publicly owned or funded facilities. ANSI A117.1-1980. See also state code. S.D.C.L.A. 5-14-13 and S.D.C.L.A. 5-46-1 (wheelchair curb ramps—most current ANSI)
Tennessee	Physically and mentally handicapped. Tenn. Code Ann. 8-50-103.	White Cane Law. Tenn. Code Ann. 62-7-112.	Physically handicapped. Tenn. Code Ann. 68-7-104.	White Cane Law. Tenn. Code Ann. 62-7-112 (public institutions).	Public facilities. North Carolina Illustrated Handbook. Tenn. Code Ann. 68-18-201.
Texas	Physically and mentally handicapped and mentally retarded. Tex. Code Ann. Human Resources 121.003. T.C.S. Vol 18A. Title 92, Art. 5547-300. Texas Human Rights Comm. Sec. 1.01.	Physically handicapped. Tex. Code Ann. Human Resources 121.003.	Physically handicapped. Tex. Code Ann. Human Resources 121.003.	Physical facilities (within definition of public accommodation). Tex. Code Ann. 121.003.	Public and private facilities. ANSI A117.1-1980. See also state code. Tex. Rev. Stat. Art. 6018, Art. 7, Sec. 7.01.
Utah	Physically and mentally handicapped. Utah Code Ann. 34-35-1.	White Cane Law. Utah Code Ann. 58-30-1.	White Cane Law. Utah Code Ann. 58-30-1.		Publicly owned facilities. Utah Code Ann. 58-29-1.
Vermont	Physically and mentally handicapped. 21 Vt. Stat. Ann. 494 et seq.	Blind and deaf persons. 13 Vt. Stat. Ann. 1451.		Blind and deaf persons. See definition of public accommodations. 13 Vt. Stat. Ann. 1451.	Public and private facilities. ANSI A117.1-1980. See also state code. 18 Vt. Stat. Ann. 1321.
Virginia	Physically and mentally handicapped. Va. Code 51.01-41.	Physically and mentally handicapped. Va. Code 51.01-44.	Physically and mentally handicapped. Va. Code 51.01-45.	Physically and mentally handicapped. Va. Code 51.01-42.	State owned facilities. ANSI A117.1-1980. See also state code. Va. Code 2.1-514, 15.1-381.
Washington	Physically and mentally handicapped. Rev. Code Wash. 49.60.180.	Physically and mentally handicapped. Rev. Code Wash. 49.60.215. White Cane Law. Rev. Code Wash. 70.84.010.	Physically and mentally handicapped. Rev. Code Wash. 49.60.010.	Within definition of public accommodation. Rev. Code Wash. 49.060.040 and 49.060.215.	Public and private facilities. ANSI A117.1. See also state code. Rev. Code Wash. 70.92.100.

	Employment	Public Accommodations	Housing	Education	Accessibility
West Virginia	Physically and mentally handicapped. W. Va. Code 5-11-9.	Physically and mentally handicapped. W. Va. Code 5-11-9. White Cane Law. W. Va. Code 5-15-4.	Physically and mentally handicapped. W. Va. Code 5-11-9.	Physically and mentally handicapped (within definition of public accommodation). W. Va. Code 5-11-9.	Public owned or used facilities. ANSI A117.1-1961/71. See also state code, W. Va. Code 18-16F-1.
Wisconsin	Physically and mentally handicapped. Wis. Stat. Ann. 111.321.	Physically handicapped and developmentally disabled. Wis. Stat. Ann. 942.04. White Cane Law. Wis. Stat. Ann. 174.056.	Physically and mentally handicapped. Wis. Stat. Ann. 101.22.	Physically handicapped or developmentally disabled in postsecondary or vocational education. Wis. Stat. Ann. 101.223.	Public and private facilities. Most current ANSI. See also state code. Wis. Stat. Ann. 101.13.
Wyoming	Physically and mentally handicapped. Wy. Stat. Ann. 27-9-101.	White Cane Law. Wy. Stat. Ann. 42-1-136.			State buildings. ANSI A117.1-1961/71. See also state code. Wy. Stat. Ann. 35-13-101.

Architectural Accessibility and Barrier Removal in Housing

CALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	Date in parentheses refers to Supplement. State and Citation	
not specific to housing → Gov. Code §4450 et seq.[a] Civil Code §54 et seq	Rev. Stat. §9-5-102 et seq.[a6]	Gen. Stat. Ann. § 29-269 et seq	Code Tit. 29 §6917		
X	•□			Blind	Persons Protected
X	•□			Deaf	
•□	•□	•□	•	Physically Disabled	
•□	•□	•□		Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
•□	•□	•□	•[14]	Private Housing Constructed or Renovated with Private Funds	
•□	•□	•□	•[14]	Public Housing	
		•□[9]		Entire Building	Extent of Compliance of Existing Facilities
•□	•□[6]			Only Area of Repair	
	•□[7]	•□[10]		Portion of Units	
•□	•□			Simple Maintenance Exempted	
				Standards Apply Only to New Buildings	
•□[4]		•□		Discretionary	Exceptions to Compliance
	•□			Undue Hardship	
X	•□	•□		Single Family Residence	
	•□[3]	•□[11]		Other	
				Property Tax Reduction for Property Owner	
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

4. Exception to compliance is permitted only if equivalent facilitation and protection can be secured.
5. This preferential tax treatment only applies if the facility is not-for-profit.
6. only area of repair if bldg. is already existing and alterations made.
7. If property contains more than 7 units, a proportional number of units (1/8, 2/16, etc.) must comply.
8. Statute does not apply to residential property containing less than 7 units.
9. Standards apply to entire building if it is substantially renovated.
10. In public and private housing projects of 10 or more units, at least 10% of such units shall comply with standards. [(CT §19-395(p)(1977)] In residential multi-family housing, standards do not apply if less than 25 units; if more than 25, 1 unit per 25 shall comply with standards. [CT §19-395(d)(1977)]
11. Two-family residences are exempted from standards.

14. Standards are applicable to projects constructed through public works contracts.

Architectural Accessibility and Barrier Removal in Housing

DIST./COLUMBIA	FLORIDA	GEORGIA	HAWAII	Date in parentheses refers to Supplement. State and Citation	
Code Encyclopedia §5-1003 (1978)[15]	Stat. Ann. §553.45 et seq. (1978)[a] §255.21 not specific to housing. Has 2 stds	Code Ann. 30-3-1 et. seq.	Rev. Stat. §246-31		
	•□			Blind	Persons Protected
				Deaf	
	•□	•		Physically Disabled	
	•□	•		Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
	•□	•		Private Housing Constructed or Renovated with Private Funds	
	•□	•		Public Housing	
				Entire Building	Extent of Compliance of Existing Facilities
		•[19]		Only Area of Repair	
	•□[16]	•[20]		Portion of Units	
				Simple Maintenance Exempted	
	•□			Standards Apply Only to New Buildings	
		•		Discretionary	Exceptions to Compliance
	•□			Undue Hardship	
		•		Single Family Residence	
	•□[16]	•[21]		Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

16. Provides that in 2 and 3 story buildings with less than 49 units, housing accessibility not required if not served by elevator. Twenty-five percent of total number otherwise shall comply with these provisions. also, not applied to condominiums/units; townhouses and duplexes

19. Rental apartment complexes and temporary lodging facilities must have each entrance to the building of units, and all doors to the units be of width usable by users of wheelchairs. Provisions apply where substantial renovation occurs. (Substantial renovation means project costing at least 20% of property's assessed tax value.)

20. Applies to rental apartment complexes of 20 or more units, 5% of which shall comply.

21. Does not apply to duplex, triplex or condominium apartments.

Architectural Accessibility and Barrier Removal in Housing

IDAHO	ILLINOIS	INDIANA	IOWA	Date in parentheses refers to Supplement. State and Citation	
	Ann. Stat. 111½ §3711		Code §104A.1 (1979)[a] §425.2,16[b]		
	X			mentally impaired	Persons Protected
	X			Blind	
	X			Deaf	
	•□[22]		•□	Physically Disabled	
			•□	Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
			•□	Private Housing Constructed or Renovated with Private Funds	
	•□[23]		•□	Public Housing	
				Entire Building	Extent of Compliance of Existing Facilities
	•□[23]			Only Area of Repair	
			•□[25]	Portion of Units	
	X			Simple Maintenance Exempted	
			•□[26]	Standards Apply Only to New Buildings	
				Discretionary	Exceptions to Compliance
				Undue Hardship	
				Single Family Residence	
	X[24]		•□[25]	Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

22. Statute is intended to apply to people with a physical, mental or communications disability or condition
23. Statute applies to "buildings, structures or improved areas owned or leased by this state or its political subdivisions." Statute covers construction of new buildings or remodeling of buildings.
24. excludes owner occupied bldgs. of 4 or fewer units. Any new multistory housing begun w/in 12 months
25. Statute applies only to multiple dwelling units containing 12 or more units, of which at least 1 unit, or 10% of the units, on each of floor levels shall comply.
26. Statute is not specific with respect to repairs.

23 (cont.) Public facility owned by state
15% or less – area altered must comply
15% to 50% – area altered; ingress/egress; area for indoor travel must comply
50% or more – entire facility must comply
Private owned facility – look at statute

24 (cont.) of act exempted. Provided, if 20% of units adaptable + common areas adapt entire unit deemed to comply.

Architectural Accessibility and Barrier Removal in Housing

KANSAS	KENTUCKY	LOUISIANA	MAINE	Date in parentheses refers to Supplement. State and Citation	
Stat. §58-1305[a]	Rev. Stat. Bldg. Code §198B.260	Rev. Stat. Ann. §40:1731[a] §49:148(1979)[b]	Rev. Stat. 25 §2701 et seq. (1978)[a] 36 §654[b] 22 §5201(1978)[c]		
X	•	•a	•a	Blind	Persons Protected
X	•		•a	Deaf	
•a	•	•a	•a	Physically Disabled	
X	•	•b	•a	Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
•a	•	•a		Private Housing Constructed or Renovated with Private Funds	
X	•	•b	•a	Public Housing	
	•31	•a		Entire Building	Extent of Compliance w/ of Existing Facilities
•a 27.5		•a32	•a34	Only Area of Repair	
•a27		•a33	•a35	Portion of Units	
		•a		Simple Maintenance Exempted	
				Standards Apply Only to New Buildings	
				Discretionary	Exceptions to Compliance
•a28				Undue Hardship	
	•	•a		Single Family Residence	
•a29	X 31.5	•a33	•a35	Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

27. Statute requires compliance from 10% of units in complexes of 20 units or more.
28. Statute does not apply to renovation if cost exceeds 7% of total cost of renovation.
29. Requirements do not apply to duplexes, or to apartment complexes containing fewer than 20 units. Does not apply to condominiums or cooperatives
30.
31. The entire building is expected to comply if it is substantially renovated.
32. Requires compliance in areas of repair only, if cost of repair is less than 20% of value.
33. Applies to 5% or at least 1 unit in complexes of 15 units or more. Does not apply to two family homes.
34. Applies only where total cost of reconstruction is in excess of $100,000 and would affect portion used by public.
35. Applies to buildings with a minimum of 10 units.

27.5 renovate - reconstruct or remodel an amt equal to 25% or more of replacement value of apt complex

31.5 exempt - 2 family dwelling & multifamily dwelling of 24 units or less
if not exempt 1 of every 25 units must be accessible

Architectural Accessibility and Barrier Removal in Housing

MARYLAND	MASSACHUSETTS	MICHIGAN	MINNESOTA	Date in parentheses refers to Supplement. State and Citation	
Ann. Code Art. 56-102	Gen. Laws Ann. 22 §13A(1979)[a] Chapt. 143 §3w	Comp. Laws Ann. §125-1351 defn of bldg. §3.447(121)	Stat. Ann. §16.84 et seq.[a] §290.0603 (1978)[b]		
	X			mental illness	
	X	•		Blind	Persons Protected
	X	•		Deaf	
•□	X	•	•	Physically Disabled	
•□	•□	•	•[44]	Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
	•□	•	•[44]	Private Housing Constructed or Renovated with Private Funds	
•□	•□	•	•	Public Housing	
	•□[38]	•[41]		Entire Building	Extent of Compliance of Existing Facilities
		•[42]		Only Area of Repair	
	•□[39]			Portion of Units	
		•		Simple Maintenance Exempted	
•□				Standards Apply Only to New Buildings	
		•		Discretionary	Exceptions to Compliance
	X			Undue Hardship	
		•	•	Single Family Residence	
	•[39]	•[43]	•[45]	Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

38. The entire building must comply with standard if cost of repair or renovation exceeds 5% of the full and fair value of the building.

39. Applies to public areas of facilities with 12 or more units, and to 5% of units in buildings of 20 or more lodging or residential facilities

41. If area of repair is greater than 50% of building, entire building must be in compliance.

42. If area of repair is less than 50% of building, only area of repair needs to be in compliance.

43. Two family residences are exempt from compliance.

44. Private housing is required to comply only with requirement of smoke detectors. (Stat. Ann. §299F.362 [1978])

45. Statute does not apply to two-family houses.

Maryland - if willfully violates code for handicapped - guilty of misdemeanor + fined $500/day of violation or imprisonment of 3 months or both

Massachusetts - failure to cure for noncompliance fine of $1000/day for unjustified noncompliance

Architectural Accessibility and Barrier Removal in Housing

NEVADA	NEW HAMPSHIRE	NEW JERSEY	NEW MEXICO	Date in parentheses refers to Supplement. State and Citation	
Rev. Stat. Ann §361.087	Rev. Stat. Ann. §72-37[a] §72-37-a[b]	Stat. Ann. §52-32-6 (1979)[a]			
		•a		Blind	Persons Protected
		•a		Deaf	
		•a		Physically Disabled	
		•a		Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
		•a		Private Housing Constructed or Renovated with Private Funds	
		•a		Public Housing	
		•a[49]		Entire Building	Extent of Compliance of Existing Facilities
		•a[50]		Only Area of Repair	
				Portion of Units	
				Simple Maintenance Exempted	
				Standards Apply Only to New Buildings	
				Discretionary	Exceptions to Compliance
		•a		Undue Hardship	
		•a		Single Family Residence	
		•a[51]		Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

49. Entire building is required to conform to standards if renovation exceeds 60% of assessed value of property.

50. Only area being renovated shall conform to requirements if cost of work is between 30% and 60% of assessed value.

51. Residences for up to 4 families are exempt from statute's requirements.

NEW YORK	NORTH CAROLINA	NORTH DAKOTA	OHIO	Date in parentheses refers to Supplement.	
New York Public Bldg. Law §50	Couldn't find	Cent. Code §57-02-08(1972)	Rev. Code Ann. 3781.11.1	State and Citation	
X				Blind	Persons Protected
X				Deaf	
X				Physically Disabled	
			•	Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
				Private Housing Constructed or Renovated with Private Funds	
X			• 57	Public Housing	
X 53				Entire Building	Extent of Compliance of Existing Facilities
X				Only Area of Repair	
			• 58	Portion of Units	
X				Simple Maintenance Exempted	
				Standards Apply Only to New Buildings	
				Discretionary	Exceptions to Compliance
				Undue Hardship	
			X	Single Family Residence	
			X 56	Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

53. Alterations exceeding 50% of replacement subject to the code [less than 50% may also be subject]

56. 2-3 family Dwelling units, town houses and condominiums are exempted

57. lodging facilities owned by the state are in compliance if 10% of units are accessible

58. Housing development board requires in housing projects, assisted under Chapter 128 of Revised Code in which 10 or more units are affected, that a sufficient number of units needed to meet needs of handicapped persons in housing market served by projects shall meet ANSI Standard A-1171-1961 (R-1971 and 1980). However, the number of units required will never be less than number of units specified in division F of section 3735.02.

Architectural Accessibility and Barrier Removal in Housing

OKLAHOMA	OREGON	PENNSYLVANIA	PUERTO RICO	Date in parentheses refers to Supplement. State and Citation	
Stat. Ann. 61 §11(1979)[d]	Rev. Stat. §447.210 et seq.[a] §316.067[b] §317.330[c]	NO STATUTES			
				Blind	Persons Protected
				Deaf	
	•a			Physically Disabled	
•	•a			Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
	•a			Private Housing Constructed or Renovated with Private Funds	
•	•a[61]			Public Housing	
•[59]				Entire Building	Extent of Compliance of Existing Facilities
	•a[62]			Only Area of Repair	
				Portion of Units	
				Simple Maintenance Exempted	
				Standards Apply Only to New Buildings	
	•a			Discretionary	Exceptions to Compliance
				Undue Hardship	
				Single Family Residence	
				Other	
				Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
				Property Tax Reduction/ Exemption to Groups	
				Preferential Financing Available From State	
				Rent Supplements	
				Preferential Property Tax (Homestead) to Owner	
				Preferential Property Tax (Homestead) to Renter	
				Preferential Income Tax Treatment for Making Architectural Changes	

59. The entire building must conform to standards if additions or alterations exceed 25% of the floor space.

61. The statute is unclear as to whether public housing is covered, but it appears to be.

62. requirement for compliance with standards does not apply if cost exceeds 25% of total cost of construction or renovation

Architectural Accessibility and Barrier Removal in Housing

WASHINGTON	WEST VIRGINIA	WISCONSIN	WYOMING	V.I.	Date in parentheses refers to Supplement. State and Citation	
Rev. Code §70.92.100 et seq.(1979)	Code §18-10F-1	Stat. Ann. 101.13(1979)	Stat.Ann. §35-13-101	Code 33 §2305		
	•	•			Blind	Persons Protected
	•	•			Deaf	
•	•	•	•		Physically Disabled	
•	•	•	.85		Private Housing Constructed or Renovated With Public Funds	Facilities to Which Architectural Standards Apply
•	•	•			Private Housing Constructed or Renovated with Private Funds	
•	•	•	.85		Public Housing	
.80	X 82.5	.83			Entire Building	Extent of Compliance of Existing Facilities
.81		.83			Only Area of Repair	
	.82	.84			Portion of Units	
		X			Simple Maintenance Exempted	
			•		Standards Apply Only to New Buildings	
	•				Discretionary	Exceptions to Compliance
•	X				Undue Hardship	
•	X				Single Family Residence	
.81	.82	.84			Other	
					Property Tax Reduction for Property Owner	Incentives to Construct or Renovate Housing for Disabled
					Property Tax Reduction/ Exemption to Groups	
					Preferential Financing Available From State	
					Rent Supplements	
				•	Preferential Property Tax (Homestead) to Owner	
					Preferential Property Tax (Homestead) to Renter	
					Preferential Income Tax Treatment for Making Architectural Changes	

80. Requirements apply to entire building if renovation/cost exceeds 60% of appraisal value.

81. Does not apply to two-dwelling-units buildings, or to apartment houses with ten or fewer units.

82. Does not apply to apartment houses with less than 20 units, row houses or rooming houses.

83. Applies to entire building if 50% of floor space is remodeled. Applies only to area of repair of 25% to 50% if building is remodeled.

84. Does not apply to apartment houses with less than 20 units, row houses or rooming houses.

85. Provides a total property tax exemption for permanently disabled veterans.

82.5 applies to new construction and renovation where values of 50% or more of existing market value of building will be added.

ATBCB CODES AND STANDARDS REFERENCE FILE
DATE COMPLETED .1 / 12 / 82 REVISED 07/24/85 ACCESS NO. 1351 STATE C

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC	*		/ / 79

NOTES * TITLE 24 OF THE CALIFORNIA ADMINISTRATIVE CODE IS BASED ON THE UBC.

PRIMARY ACCESS CODE INFORMATION PAGE 2
SECONDARY ACCESS CODE INFORMATION PAGE 3
PRIMARY ACCESS CODE CONTACT INFORMATION PAGE 4
SECONDARY ACCESS CODE CONTACT INFORMATION PAGE 5

DATE COMPLETED .1 / 12 / 82 REVISED 07/24/85 ACCESS NO. 1351 STATE C

PRIMARY ACCESS CODE STATE ARCH. REGS FOR ACCOMM. OF PHYS. HAND. IN PUB. FA

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIO
EFF. DATE	07 / 01 / 82		10 / 01 / 82		12 / 01 / 82		/ / 8
BASIS OF CODE	TECH REF	SCOPE AMD REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X / X
ANSI A117.1`80			PUBLC OWNED BLDG	X	BUSINESS		X / X
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		X / X
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL		X / X
UFAS			ALTERATIONS	2	HAZARDOUS		
OTH	1	1	OTH	X	INSTITUTIONAL		X / X
					MERCANTILE		X / X
					STORAGE		X / X
					RESIDENTIAL		X / X
					OTH		

NOTES 1. CAL. CODE WAS COMPILED FROM A VARIETY OF STANDARDS AND SOURCES OF DATA. 2. SOME REQUIREMENTS MAY NOT APPLY IN THE CASE OF MINOR ALTERATIONS.

DATE COMPLETED .1 / 12 / 82 REVISED 07/24/85 ACCESS NO. 1351 STATE C

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIO
EFF. DATE	/ /		/ /		/ /		/ /
BASIS OF CODE	TECH REF	SCOPE AMD REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		
ATBCB `81			PRV OWN PUBL USE		EDUCATION		
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		
UFAS			ALTERATIONS		HAZARDOUS		
OTH			OTH		INSTITUTIONAL		
NOTES					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

DATE COMPLETED 01 / 10 / 83 REVISED 07/24/85 ACCESS NO. 1352 STATE C

STATEWIDE BUILDING CODE TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC	X		/ /

NOTES

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DATE COMPLETED 01 / 10 / 83 REVISED 07/24/85 ACCESS NO. 1352 STATE C

PRIMARY ACCESS CODE COLORADO REV STAT 1973, V3, COMM II, ART 5 + AMENDMENT

CODE COMPONENT	BASIC DOCUMENT		ON FILE		ON REVISION 1 FILE		ON REVISION 2 FILE		ESTM DATE NEXT REVISIO
EFF. DATE	/ / 63				/ / 73		07 / 01 / 76		/ /
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61	X				STATE OWNED BLDG	X	ASSEMBLY		X / X
ANSI A117.1`80	1				PUBLC OWNED BLDG	X	BUSINESS		X / X
ATBCB `81					PRV OWN PUBL USE		EDUCATION		X / X
ATBCB `82					PRV OWN SEE OCC		INDUSTRIAL		X / X
UFAS					ALTERATIONS	X	HAZARDOUS		X / X
OTH COLORADO			X		OTH	X	INSTITUTIONAL		X / X
							MERCANTILE		X / X
							STORAGE		X / *
							RESIDENTIAL		X / X
							OTH		

NOTES 1. THOUGH THE 1973 STANDARD IS LEGALLY APPLICABLE, IT IS OBSOLETE. ANSI (1980) IS USED FOR STATE CONSTRUCTION, ATBCB (1982) WHERE FEDERAL MONEY IS USED. *"THIS STANDARD DOES NOT APPLY TO PRIVATELY FUNDED PROJECTS ... AS SINGLE FAMILY RESIDENCES OR PROPERTY CONTAINING LESS THAN SEVEN RESIDENTIAL UNITS."

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DATE COMPLETED 01 / 10 / 83 REVISED 07/24/85 ACCESS NO. 1352 STATE C

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT		ON FILE		ON REVISION 1 FILE		ON REVISION 2 FILE		ESTM DATE NEXT REVISIO
EFF. DATE	/ /				/ /		/ /		/ /
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61					STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80	X		X		PUBLC OWNED BLDG		BUSINESS		
ATBCB `81					PRV OWN PUBL USE		EDUCATION		
ATBCB `82					PRV OWN SEE OCC		INDUSTRIAL		
UFAS					ALTERATIONS		HAZARDOUS		
OTH					OTH		INSTITUTIONAL		
							MERCANTILE		
							STORAGE		
							RESIDENTIAL		
							OTH		

NOTES CHECK LOCAL BUILDING DEPARTMENTS. MANY JURISDITIONS ENFORCE THE UBC BARRIER-FREE DESIGN REQUIREMENTS.

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1353 STATE CT

DATE COMPLETED 01 / 12 / 83 REVISED 07/24/85 TECHNICAL BASIS # #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		X	/ / 78		SBC			/ /
	NBC			/ /		UBC			

NOTES

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ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1353 STATE CT

DATE COMPLETED 01 / 12 / 83 REVISED 07/24/85 SECTION 315 PHYS. HAND.

PRIMARY ACCESS CODE ART. 21 CT BASIC BLDG CODE.

CODE COMPONENT	BASIC DOCUMENT REF	AMD	ON FILE REF	AMD
EFF. DATE	09 / 01 / 71			
BASIS OF CODE	TECH		SCOPE	
ANSI A117.1`61		X		
ANSI A117.1`80				
ATBCB `81				
ATBCB `82				
UFAS				
OTH CT			X	

ON REVISION 1 FILE / / 78

CODE APPLICABILITY	
STATE OWNED BLDG	X
PUBLC OWNED BLDG	X
PRV OWN PUBL USE	X
PRV OWN SEE OCC	X
ALTERATIONS	1
OTH	

ON REVISION 2 FILE / /

ESTM DATE NEXT REVISION / /

OCCUP CATEGORIES	PUB OWN	PRV OWN
ASSEMBLY	X	X
BUSINESS	X	X
EDUCATION	X	X
INDUSTRIAL	X	X
HAZARDOUS		
INSTITUTIONAL	X	X
MERCANTILE	X	X
STORAGE	X	X
RESIDENTIAL	X	2
OTH		

NOTES 1. IF ALTERATION COST EXCEEDS 50% OF MARKET VALUE, BUILDING MUST COMPLY; 25-50% BLDG OFFICIAL'S DISCRETION; LESS THAN 25% NEED NOT COMPLY. 2. HOTELS AND MOTELS WITH LESS THAN 25 ROOMS ARE EXEMPT, AS ARE HAZARDOUS BUILDINGS.

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1353 STATE C

DATE COMPLETED 01 / 12 / 83 REVISED 07/24/85

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT REF	AMD	ON FILE REF	AMD
EFF. DATE	/ /			
BASIS OF CODE	TECH		SCOPE	
ANSI A117.1`61				
ANSI A117.1`80				
ATBCB `81				
ATBCB `82				
UFAS				
OTH				

NOTES

ON REVISION 1 FILE / /

CODE APPLICABILITY
STATE OWNED BLDG
PUBLC OWNED BLDG
PRV OWN PUBL USE
PRV OWN SEE OCC
ALTERATIONS
OTH

ON REVISION 2 FILE / /

ESTM DATE NEXT REVISIC / /

OCCUP CATEGORIES	PUB OWN	PRV OWN
ASSEMBLY		
BUSINESS		
EDUCATION		
INDUSTRIAL		
HAZARDOUS		
INSTITUTIONAL		
MERCANTILE		
STORAGE		
RESIDENTIAL		
OTH		

DATE COMPLETED 01 / 17 / 83 REVISED 07/24/85 ACCESS NO. 1356 STATE FL

STATEWIDE BUILDING CODE # # TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC	*		/ / 82
	NBC			/ /		UBC			/ /

NOTES *FLORIDA USES THE SBC OR THE FOLLOWING CODES IN THE LISTED AREAS: REEDY CREEK COUNTY - EPCOT BLDG CODE; DADE COUNTY - SOUTH FLORIDA BLDG CODE; DUVALL COUNTY & JACKSONVILLE - NBC.

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DATE COMPLETED 01 / 17 / 83 REVISED 07/24/85 ACCESS NO. 1356 STATE FL

PRIMARY ACCESS CODE SECT. 255.21 FL STATUTES, CHAP. 13D-1 FL ADMIN CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE / /	ON	REVISION 2 FILE / /	ON	ESTM DATE NEXT REVISION / / 85
EFF. DATE	01 / 01 / 75						
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		*
ANSI A117.1`80	X	X	PUBLC OWNED BLDG	X	BUSINESS		*
ATBCB `81			PRV OWN PUBL USE		EDUCATION		*
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		*
UFAS			ALTERATIONS	1	HAZARDOUS		*
OTH			OTH STATE LEASED	X	INSTITUTIONAL		*
					MERCANTILE		*
					STORAGE		*
					RESIDENTIAL		*
					OTH		*

NOTES THE ATBCB (MGRAD 1982) CURB CUT STDS APPLY FOR NEW CONSTRUCTION AFTER 7/85 FOR INTERSECTIONS, PUBLIC STREETS AND ROADS. *-THE 2 FL CODES LISTED ABOVE APPLY TO ANY BLDG INTENDED FOR USE BY GEN. PUB. 1-IF ALTERATION COSTS EXCEED 50% OF MKT VALUE, THEN TOTAL COMPLIANCE IS REQUIRED; BETWEEN 20-50% OF THE COST REQUIRES THE REMODELED PORTION TO BE ACCESSIBLE. DOORS, ENTRANCES & TOILETS MUST COMPLY EVEN WHEN ALTERATION COSTS ARE LESS THEN 20% OF FULL MARKET VALUE.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 01 / 17 / 83 REVISED 07/24/85 ACCESS NO. 1356 STATE FL

SECONDARY ACCESS CODE ACCESSIBILITY CODES & STANDARDS FOR THE HANDICAPPED

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE / /	ON	REVISION 2 FILE / /	ON	ESTM DATE NEXT REVISION / / 8
EFF. DATE	10 / 01 / 74						
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61	*		STATE OWNED BLDG		ASSEMBLY		*
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		*
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		*
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL		*
UFAS			ALTERATIONS		HAZARDOUS		*
OTH			OTH		INSTITUTIONAL		*
					MERCANTILE		
					STORAGE		*
					RESIDENTIAL		1
					OTH		

NOTES * OVER 50 OCCUPANCY TYPES ARE LISTED IN THE SECONDARY ACCESS CODE. 1-SINGLE-FAMILY, TOWNHOUSES, CONDOMINIUMS AND DUPLEXES EXCLUDED.

DATE COMPLETED 01 / 18 / 83 REVISED 07/24/85 ACCESS NO. 1357 STATE C

# # STATEWIDE BUILDING CODE				# # TECHNICAL BASIS # #			
# # CODE	REF	AMD	DATE	# # CODE	REF	AMD	DATE
BOCA			/ /	SBC			/ /
NBC			/ /	UBC			/ /

NOTES * GA STATE BUILDING CODE (FIRE & LIFE SAFETY CODE '81) BECOMES MANDATOR
ONLY WHEN ADOPTED BY LOCAL GOVERNMENTS--LOCAL GOVERNMENTS MAY ADOPT OTHER
MODEL CODES.

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ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 2

DATE COMPLETED 01 / 18 / 83 REVISED 07/24/85 ACCESS NO. 1357 STATE G

PRIMARY ACCESS CODE ANSI A117.1 (1980)

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIO
EFF. DATE	/ / 75		07 / 01 / 77		04 / / 79		* / /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X / X
ANSI A117.1`80	X	X	PUBLC OWNED BLDG	X	BUSINESS		X / X
ATBCB `81			PRV OWN PUBL USE	3	EDUCATION		X / X
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL		X / X
UFAS			ALTERATIONS	2	HAZARDOUS		X / X
OTH GEORGIA		X	OTH		INSTITUTIONAL		X / X
					MERCANTILE		X / X
					STORAGE		X / X
					RESIDENTIAL		X / 1
					OTH		

NOTES *ALSO REV 3/80 & 7/84;1-SINGLE FAMILY RESIDENCES, DUPLEXES, TRIPLEXES AND CONDOMINIUMS ARE EXEMPTED FROM REQUIREMENTS. OTHER RESIDENTIAL OCC UPANCIES MAY HAVE REDUCED REQUIREMENTS;CHECK CODE DOCUMENT FOR SPECIFICS. 2-SUBSTANTIAL RENOVATION IS THAT WHICH EXCEEDS 20% OF ASSESSED TAX VALUE. RE OCCUP CATEG, PROVISIONS O THE PRIMARY ACCESS CODE APPLY TO ALL BLDGS., STRUCTURES, STREETS AND ACCESS TO USED BY THE PUBLIC OR IN WHICH HANDICAPPED OR ELDERLY PERSONS MAY BE EMPLOYED.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 01 / 18 / 83 REVISED 07/24/85 ACCESS NO. 1357 STATE C

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIC
EFF. DATE	/ /		/ /		/ /		/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB PRV OWN OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		
ATBCB `81			PRV OWN PUBL USE		EDUCATION		
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		
UFAS			ALTERATIONS		HAZARDOUS		
OTH			OTH		INSTITUTIONAL		
					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

NOTES BUILDINGS OR STRUCTURES, 3 OR MORE STORIES IN HIEGHT AND USED AS A RESIDENCE BY 3 OR MORE FAMILIES. 3-ANY BUILDING IN WHICH THERE ARE MORE THAN 15 SLEEPING ACCOMMODATIONS FOR HIRE.

DATE COMPLETED 01 / 20 / 83 REVISED 07/29/85 ACCESS NO. 1360

STATEWIDE BUILDING CODE # # TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC			

NOTES NO STATEWIDE BUILDING CODE

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ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1360 STATE IL

DATE COMPLETED 01 / 20 / 83 REVISED 07/29/85

PRIMARY ACCESS CODE ACCESSIBILITY STANDARDS ILLUSTRATED PLUS AMENDMENTS

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ESTM DATE NEXT REVISION
EFF. DATE	12 / 28 / 78		03 / 31 / 81		03 / 01 / 85	/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES	PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY	X / X
ANSI A117.1`80			PUBLC OWNED BLDG	X	BUSINESS	X / X
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION	X / X
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL	X / X
UFAS			ALTERATIONS	1	HAZARDOUS	X / X
OTH ILLINOIS	*	*	OTH STATE LEASED	X	INSTITUTIONAL	X / X
					MERCANTILE	X / X
					STORAGE	X / X
					RESIDENTIAL	X / 2
					OTH	

NOTES * WHILE THIS CODE WAS DEVELOPED BEFORE ANSI (1980), IT USED ANSI'S PROPOSED REVISIONS PRIOR TO ACCEPTANCE IN 1980 BY THE ANSI COMMITTEE ALONG WITH OTHER RESEARCH AND PROFESSIONAL OPINION. 1- THE ATTY GEN RULED THAT THE ALTERATION REQUIREMENTS APPLY ONLY TO PUBLIC BLDGS. 2- ONE AND TWO FAMILY RESIDENCES, 2ND & 3RD FLOOR WALKUPS AND PRIVATELY OWNED APARTMENTS ARE EXCLUDED FROM CODE REQUIREMENTS.

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1360 STATE I

DATE COMPLETED 01 / 20 / 83 REVISED 07/29/85

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ESTM DATE NEXT REVISIC
EFF. DATE	/ /		/ /		/ /	/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES	PUB PR OWN OWI
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY	
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS	
ATBCB `81			PRV OWN PUBL USE		EDUCATION	
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL	
UFAS			ALTERATIONS		HAZARDOUS	
OTH			OTH		INSTITUTIONAL	
NOTES					MERCANTILE	
					STORAGE	
					RESIDENTIAL	
					OTH	

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1363 STATE KS
ATE COMPLETED 01 / 21 / 83 REVISED 07/30/85 TECHNICAL BASIS # #

#	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC	*		/ / 84

OTES *THE UBC IS USED FOR ALL STATE CONSTRUCTION. LOCAL JURISDICTIONS ADOPT
NY CODE OF THEIR CHOOSING. FOR STATE BLDGS (BOTH NEW & RENOVATED) THE UBC '85
DITION APPLIES.

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PRIMARY ACCESS CODE ADOPTION OF ANSI KS CHAP. 13, SECTS 58-1301 TO 58-1305

CODE COMPONENT	BASIC DOCUMENT REF	AMD	ON FILE SCOPE REF	AMD
EFF. DATE	01 / 01 / 70		01 / 01 / 79	
BASIS OF CODE	TECH		CODE APPLICABILITY	
ANSI A117.1`61				
ANSI A117.1`80	X			
ATBCB `81				
ATBCB `82				
UFAS				
OTH KANSAS		X	STATE OWNED BLDG	X
			PUBLC OWNED BLDG	X
			PRV OWN PUBL USE	X
			PRV OWN SEE OCC	X
			ALTERATIONS	X
			OTH ST LEASED	X

NOTES THE 1979 AMENDMENT ENCOMPASSES ALL BLDGS.
"USED BY THE PUBLIC."*-LOCAL CODE OFFICIALS ARE
RESPONSIBLE FOR INTERPRETATION AND ENFORCEMENT AT
THE LOCAL LEVEL AND WITH ALL BLDGS. NOT OWNED BY
THE STATE. BLDGS. COVERED MAY VARY BY JURISDIC-
TION. 1-SCHOOLS FALL UNDER THE STATE DEPARTMENT OF EDUCATION AND REGULATIONS
MAY DIFFER.

ON REVISION 2 FILE / / OCCUP CATEGORIES	ESTM DATE NEXT REVISION / / PUB OWN	PRV OWN
ASSEMBLY	X	*
BUSINESS	X	*
EDUCATION	1	*
INDUSTRIAL	X	*
HAZARDOUS	X	*
INSTITUTIONAL	X	*
MERCANTILE	X	*
STORAGE	X	*
RESIDENTIAL	X	*
OTH		

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT / / REF	AMD	ON FILE SCOPE REF	AMD
EFF. DATE				
BASIS OF CODE	TECH		CODE APPLICABILITY	
ANSI A117.1`61				
ANSI A117.1`80				
ATBCB `81				
ATBCB `82				
UFAS				
OTH				
NOTES				

ON REVISION 1 FILE / /	ON REVISION 2 FILE / / OCCUP CATEGORIES	ESTM DATE NEXT REVISION / / PUB OWN	PRV OWN
STATE OWNED BLDG	ASSEMBLY		
PUBLC OWNED BLDG	BUSINESS		
PRV OWN PUBL USE	EDUCATION		
PRV OWN SEE OCC	INDUSTRIAL		
ALTERATIONS	HAZARDOUS		
OTH	INSTITUTIONAL		
	MERCANTILE		
	STORAGE		
	RESIDENTIAL		
	OTH		

DATE COMPLETED 09 / 14 / 82 REVISED 07/31/85

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		X	/ / 85		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES "KY BLDG CODE": DOES NOT USE THE BARRIER-FREE DESIGN SECTION OF BOCA, THE 1983 EDITION OF THE KY CODE HAS BARRIER-FREE DESIGN REGULATIONS INCORPORATED.

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ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1364 STATE KY

DATE COMPLETED 09 / 14 / 82 REVISED 07/31/85 REGULATIONS #515 KAR 7:060

PRIMARY ACCESS CODE KY REVISED STATUTE/ADMIN.

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE		ON	REVISION 2 FILE		ESTM DATE NEXT REVISION	
EFF. DATE	07 / 15 / 81		07 / 15 / 82			/ /		/ /	
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES	PUB OWN	PRV OWN
ANSI A117.1`61					STATE OWNED BLDG	X	ASSEMBLY	X	X
ANSI A117.1`80	X				PUBLC OWNED BLDG	X	BUSINESS	X	X
ATBCB `81					PRV OWN PUBL USE	X	EDUCATION	X	X
ATBCB `82					PRV OWN SEE OCC	X	INDUSTRIAL	X	X
UFAS					ALTERATIONS	X	HAZARDOUS		
OTH KENTUCKY		X			OTH		INSTITUTIONAL	X	X
							MERCANTILE	X	X
							STORAGE	X	X
							RESIDENTIAL	X	X
							OTH		

NOTES ALL EXCEPT: (ASSEM)OCCU TOTAL LOAD IS <50 PERS OR <1500 SQ FT IN TOTL AREA; CHURCHES, PAR & & PRI SCH ACCESS WHEN TOTAL OCCUP LOAD IS <250 PERS OR <3200 SQ FT; (BUS) EPLOYS <101 PERS OR <13 CHILD;(IND) 10,000 SQ FT;(ED)DAY CARE CTRS FOR <13 CHILD;(MERCH) <100 PERS <10 PERS. OR 20,000 SQ FT; (INST) DAY CARE CTRS OR IF TOTAL BLDG AREA <10,000 SQ FT; (RES) SING OR TOTAL SALES AREA <3000 SQ FT OR IF TOTAL BLDG AREA <10,000 SQ FT. FAM & APT PROJS (<25 DWELLING UNITS); (STOR) <100 PERS OR 20,000 SQ FT.

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1364 STATE KY

DATE COMPLETED 09 / 14 / 82 REVISED 07/31/85

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE		ON	REVISION 2 FILE		ESTM DATE NEXT REVISION	
EFF. DATE	/ /		/ /			/ /		/ /	
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES	PUB OWN	PRV OWN
ANSI A117.1`61					STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80					PUBLC OWNED BLDG		BUSINESS		
ATBCB `81					PRV OWN PUBL USE		EDUCATION		
ATBCB `82					PRV OWN SEE OCC		INDUSTRIAL		
UFAS					ALTERATIONS		HAZARDOUS		
OTH					OTH		INSTITUTIONAL		
NOTES							MERCANTILE		
							STORAGE		
							RESIDENTIAL		
							OTH		

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1367 STATE MD

DATE COMPLETED 01 / 24 / 83 REVISED 07/30/85

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA	X		/ / 84		SBC			/ /
	NBC			/ /		UBC			/ /

STATEWIDE BUILDING CODE = TECHNICAL BASIS #

NOTES THE STATE CODE IS ALWAYS THE LATEST REVISION OF THE BOCA CODE. LOCAL JURISDICTIONS CAN BE MORE STRINGENT, BUT BOCA IS THE MINIMUM REQUIREMENT.

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ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1367 STATE MD

DATE COMPLETED 01 / 24 / 83 REVISED 07/30/85

PRIMARY ACCESS CODE THE MD BLDG CODE FOR THE HANDICAPPED

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE ON / /	REVISION 2 FILE ON / /	ESTM DATE NEXT REVISION / /
EFF. DATE	01 / 01 / 85		CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN / PRV OWN
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD			
ANSI A117.1`61			STATE OWNED BLDG X	ASSEMBLY	* / X
ANSI A117.1`80	*		PUBLC OWNED BLDG X	BUSINESS	* / X
ATBCB `81			PRV OWN PUBL USE X	EDUCATION	* / X
ATBCB `82			PRV OWN SEE OCC X	INDUSTRIAL	* / X
UFAS			ALTERATIONS	HAZARDOUS	* / X
OTH MARYLAND	*	*	OTH	INSTITUTIONAL	* / X
				MERCANTILE	* / X
				STORAGE	* / X
				RESIDENTIAL	* / 1
				OTH	

NOTES *-APPLIES TO ALL STATE CONSTRUCTION PROJECTS: STATE UNIVERSITIES AND COLLEGES, PRISONS, PARK STRUCTURES, STATE POLICE BLDGS, ARMORIES, OFFICE BLDGS AND LEGISLATIVE AND COURT BLDGS. 1-ONE- AND TWO-FAMILY RESIDENCES ARE EXEMPTED AND WAIVERS CAN BE JUSTIFIED UNDER CERTAIN CONDITIONS.

ATBCB CODES AND STANDARDS REFERENCE FILE ACCESS NO. 1367 STATE M

DATE COMPLETED 01 / 24 / 83 REVISED 07/30/85

SECONDARY ACCESS CODE MD CODE FOR THE HANDICAPPED

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE ON / / 76	REVISION 2 FILE ON 09 / 05 / 80	ESTM DATE NEXT REVISIC / /
EFF. DATE	04 / / 75		CODE APPLICABILITY	OCCUP CATEGORIES	PUB PRV
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD			OWN OWI
ANSI A117.1`61			STATE OWNED BLDG	ASSEMBLY	
ANSI A117.1`80			PUBLC OWNED BLDG	BUSINESS	
ATBCB `81			PRV OWN PUBL USE	EDUCATION	
ATBCB `82			PRV OWN SEE OCC	INDUSTRIAL	
UFAS			ALTERATIONS	HAZARDOUS	
OTH			OTH	INSTITUTIONAL	
NOTES				MERCANTILE	
				STORAGE	
				RESIDENTIAL	
				OTH	

DATE COMPLETED 03 / 07 / 83 REVISED 08/01/85 ACCESS NO. 1368 STATE M

STATEWIDE BUILDING CODE TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		*	/ / 72		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES *-THE MA STATE BLDG CODE IS BASED ON THE 1972 BOCA CODE. THE BASIC DOCUMENT WENT INTO EFFECT 1-1-73. THE CURRENT EDITION IS DATED 9-1-80.

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DATE COMPLETED 03 / 07 / 83 REVISED 08/01/85 ACCESS NO. 1368 STATE M

PRIMARY ACCESS CODE RULES & REG OF THE ARCH BAR BD CMR-521 & SUPPLMT 301

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE	ON REVISION 2 FILE	ESTM DATE NEXT REVISIC
EFF. DATE	03 / 03 / 77		10 / 01 / 81	04 / 01 / 82	/ / *
BASIS OF CODE	TECH REF	AMD SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB PRV OWN OWN
ANSI A117.1`61			STATE OWNED BLDG X	ASSEMBLY	X X
ANSI A117.1`80			PUBLC OWNED BLDG X	BUSINESS	2 2
ATBCB `81			PRV OWN PUBL USE X	EDUCATION	X X
ATBCB `82			PRV OWN SEE OCC X	INDUSTRIAL	2 2
UFAS			ALTERATIONS 1	HAZARDOUS	
OTH MA	*	*	OTH	INSTITUTIONAL	X X
				MERCANTILE	2 2
				STORAGE	1 X
				RESIDENTIAL	X X
				OTH	

NOTES *-MA DEVLPD OWN UNIQUE CODE. REV OF 10/1/8 PLACED ENFORCEMT RESP ON LOC OFFICLS. REV. OF 4/1 82 USED SOME ANSI `80 PROVISIONS, OTH ST & MODEL CODES. **REV 1/31/85 ONLY CHANGED SEC 4 "APPEAL & VARIANCE."1-ALT OF 25-100% MUST COMPLY. ALT <25% VALUE & >$50,000 ALTRD PORT MUST COMPLY W/ ACCESSIBLE ENTR & TOILET. <25% VAL <$50,000-ONLY ALTRD PORT MUST COMPLY. CODE APPLS TO ALL BLDGS USED BY PUB EXCF FACT & COMRCL BLDGS, 2 STORIES W/ <40 PERS-UNLESS LOCATD IN SHPG CTR OR DR`S (

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 03 / 07 / 83 REVISED 08/01/85 ACCESS NO. 1368 STATE

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE	ON REVISION 2 FILE	ESTM DATE NEXT REVISI
EFF. DATE	/ /		/ /	/ /	/ /
BASIS OF CODE	TECH REF	AMD SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB PR OWN OW
ANSI A117.1`61			STATE OWNED BLDG	ASSEMBLY	
ANSI A117.1`80			PUBLC OWNED BLDG	BUSINESS	
ATBCB `81			PRV OWN PUBL USE	EDUCATION	
ATBCB `82			PRV OWN SEE OCC	INDUSTRIAL	
UFAS			ALTERATIONS	HAZARDOUS	
OTH			OTH	INSTITUTIONAL	
NOTES				MERCANTILE	
				STORAGE	
				RESIDENTIAL	
				OTH	

ATBCB CODES AND STANDARDS REFERENCE FILE
DATE COMPLETED 01 / 25 / 83 REVISED 08/01/85 ACCESS NO. 1369 STATE MI

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		X	/ / 81		SBC			/ /
	NBC			/ /		UBC			/ /

STATEWIDE BUILDING CODE # # TECHNICAL BASIS #

NOTES UPDATING TO BOCA, 1984; EXPECT TO BE ADOPTED BY FALL 1985. THE STATE CODE IS BOCA WITH AMENDMENTS; SOME JURISDICTIONS ENFORCE THE STATE CODE, SOME USE BOCA, SOME USE UBC; ALL MUST FOLLOW ACCESSIBILITY REQUIREMENTS IN THE STATE CODE.

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ATBCB CODES AND STANDARDS REFERENCE FILE
DATE COMPLETED 01 / 25 / 83 REVISED 08/01/85 ACCESS NO. 1369 STATE MI

PRIMARY ACCESS CODE PT 4 BLDG CODE RULES OF THE CONSTRUCTION CODE COMMISSI

CODE COMPONENT	BASIC DOCUMENT		ON FILE	REVISION 1 FILE ON		REVISION 2 FILE ON	ESTM DATE NEXT REVISION	
EFF. DATE	07 / 20 / 75			/ / 79		11 / 30 / 81	/ / 83	
BASIS OF CODE	TECH REF	AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES	PUB OWN	PRV OWN
ANSI A117.1`61	*			STATE OWNED BLDG	X	ASSEMBLY	X	X
ANSI A117.1`80				PUBLC OWNED BLDG	X	BUSINESS	X	X
ATBCB `81				PRV OWN PUBL USE	X	EDUCATION	X	X
ATBCB `82				PRV OWN SEE OCC	X	INDUSTRIAL	X	X
UFAS				ALTERATIONS	X	HAZARDOUS	X	X
OTH MI & OT CO	*		*	OTH STATE-LEASED	X	INSTITUTIONAL	X	X
						MERCANTILE	X	X
						STORAGE	X	X
						RESIDENTIAL	1	1
						OTH		

NOTES *-MI BFD REQUIRE WERE DEV IN 1966 USING ANSI`61, OTH RELEVANT CODES & STDS & PROF & INDIV EXPERIENCE OF PEOPLE IN MI. IT HAS NOT BEEN SUBSTANTIALLY MODIFIED SINCE JULY `75. CURRENTLY BEING UPDATED. PROV. OF ACT 1 OF `66, MI BFD REQUIREMENTS APPLY TO ALL LEVELS USED BY GENL PUB & EMPLYS, ALL NEW CONST AFTER 7/2/74, SOME AFTER 7/20/75 WHICH UNDERGO A CHANGE IN USE GROUP, OCCUP LOAD OR ALTER OTH THAN ORD MAINT. BFDB IS AUTH TO GRANT EXCEPTNS. 1 & 2-FAMLY DW EXEMP

ATBCB CODES AND STANDARDS REFERENCE FILE
DATE COMPLETED 01 / 25 / 83 REVISED 08/01/85 ACCESS NO. 1369 STATE M

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT		ON FILE	REVISION 1 FILE ON	REVISION 2 FILE ON	ESTM DATE NEXT REVISIC	
EFF. DATE	/ /			/ /	/ /	/ /	
BASIS OF CODE	TECH REF	AMD	SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN	PRV OWI
ANSI A117.1`61				STATE OWNED BLDG	ASSEMBLY		
ANSI A117.1`80				PUBLC OWNED BLDG	BUSINESS		
ATBCB `81				PRV OWN PUBL USE	EDUCATION		
ATBCB `82				PRV OWN SEE OCC	INDUSTRIAL		
UFAS				ALTERATIONS	HAZARDOUS		
OTH				OTH	INSTITUTIONAL		
NOTES					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		*	/ / 85		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES THE STATE OF NJ ADOPTS SUPPLEMENTS WHEN ISSUED. ALL BARRIER-FREE REGULATIONS WERE DELETED WITH THE EXCEPTION OF SECTION 513.

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DATE COMPLETED 02 / 01 / 83 REVISED 08/02/85 ACCESS NO. 1377 STATE N

PRIMARY ACCESS CODE BARRIER-FREE DESIGN REGS, STATE OF NJ AND AMENDMENTS

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIO
EFF. DATE	01 / 01 / 77		02 / 01 / 79		/ /		9 / /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X X
ANSI A117.1`80	*		PUBLC OWNED BLDG	X	BUSINESS		X X
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		
ATBCB `82	*		PRV OWN SEE OCC	X	INDUSTRIAL		X X
UFAS	*		ALTERATIONS	1	HAZARDOUS		
OTH NEW JERSEY	*	*	OTH		INSTITUTIONAL		X X
					MERCANTILE		X X
					STORAGE		
					RESIDENTIAL		* *
					OTH		

NOTES THE NJ REGS APPLY TO ALL "PUBLIC BLDGS" WHETHER CONST BY STATE, PUBLIC AGENCY, OR PRIVATE INDIVIDUAL, PARTNER, ASSOC, CORP. *-NJ'S BFD REGS UPDATE W/ ASSISTANCE OF DISABILITY & PROFESSIONAL GROUPS IN STATE. CERTAIN PARTS OF ANSI '80 TECH PROV COMBINED W/ OTH REQ. MAJ REVIS. TO INCORP MORE DIGRMS, AVAIL LATE '85. E CLUDED FROM REQS OF THIS CODE - 1-4 FAMILY RES/TWNHOUSES. 1-ALTER OVER 50% OF BLDG VAL REQS TOTAL COMPLIANCE. BETWEEN 25-50% REQS PARTIAL COMPLIANCE.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 02 / 01 / 83 REVISED 08/02/85 ACCESS NO. 1377 STATE N

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIO
EFF. DATE	/ /		/ /		/ /		/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		
ATBCB `81			PRV OWN PUBL USE		EDUCATION		
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		
UFAS			ALTERATIONS		HAZARDOUS		
OTH			OTH		INSTITUTIONAL		
NOTES					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

DATE COMPLETED 10 / 12 / 83 REVISED 08/05/85 ACCESS NO. 1379 STATE NY

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES THE NY STATE UNIFORM FIRE PREVENTION & BLDG CODE IS INDIGENOUS TO ITSELF. AS OF 1/1/84 IT IS MANDATORY FOR ALL BUT NEW YORK CITY.

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ATBCB CODES AND STANDARDS REFERENCE FILE

DATE COMPLETED 10 / 12 / 83 REVISED 08/05/85 ACCESS NO. 1379 STATE NY

PRIMARY ACCESS CODE ART 18 OF NY STATE CODE: FAC FOR PHY HANDICAPPED

CODE COMPONENT	BASIC DOCUMENT REF	AMD	ON FILE	REVISION 1 FILE ON / / CODE APPLICABILITY	REVISION 2 FILE ON / / OCCUP CATEGORIES	ESTM DATE NEXT REVISION / / PUB OWN	PRV OWN
EFF. DATE	01 / 01 / 84						
BASIS OF CODE	TECH	SCOPE					
ANSI A117.1`61				STATE OWNED BLDG X	ASSEMBLY	X	X
ANSI A117.1`80	X			PUBLC OWNED BLDG X	BUSINESS	X	X
ATBCB `81				PRV OWN PUBL USE X	EDUCATION	X	X
ATBCB `82				PRV OWN SEE OCC X	INDUSTRIAL	X	X
UFAS				ALTERATIONS *	HAZARDOUS	X	X
OTH ST BL CO			X	OTH	INSTITUTIONAL	X	X
					MERCANTILE	X	X
					STORAGE	X	X
					RESIDENTIAL	1	1
					OTH		

NOTES IN THE NY STATE BLDG CONSTRUCTION CODE, THE OCCUPANCY CATEGORIES AND THEIR ACCESS REQUIREMTS ARE LISTED IN A TABLE. ACCESS REQUIREMENTS DEPEND UPON THE SQUARE FOOTAGE AREA OF THE SPECIFIC PROJECT. MANY OF THE LISTED CATEGORIES HAVE SUBCATEGORIES WHERE REQUIREMENTS VARY. *-IF OVER 50% OF THE COST OF THE BLDG, EXCEPT IN CITIES WITH A POPULATION OF OVER 1,000,000. 1-ALL RESIDENTIAL FACILITIES EXCEPT ONE-AND TWO-FAMILY DWELLINGS.

ATBCB CODES AND STANDARDS REFERENCE FILE

DATE COMPLETED 10 / 12 / 83 REVISED 08/05/85 ACCESS NO. 1379 STATE N

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT REF	AMD	ON FILE	REVISION 1 FILE ON / / CODE APPLICABILITY	REVISION 2 FILE ON / / OCCUP CATEGORIES	ESTM DATE NEXT REVISIO / / PUB OWN	PRV OWN
EFF. DATE	/ /						
BASIS OF CODE	TECH	SCOPE					
ANSI A117.1`61				STATE OWNED BLDG	ASSEMBLY		
ANSI A117.1`80				PUBLC OWNED BLDG	BUSINESS		
ATBCB `81				PRV OWN PUBL USE	EDUCATION		
ATBCB `82				PRV OWN SEE OCC	INDUSTRIAL		
UFAS				ALTERATIONS	HAZARDOUS		
OTH				OTH	INSTITUTIONAL		
NOTES					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

DATE COMPLETED 02 / 04 / 83 REVISED 08/02/85

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

#	CODE	REF	AMD	DATE	#	CODE	REF	AMD	DATE
	BOCA			/ /		SBC		*	/ /
	NBC			/ /		UBC			/ /

NOTES *-THE NORTH CAROLINA BLDG CODE IS BASED ON THE SBC AND IS UPDATED QUARTERLY BY THE NORTH CAROLINA STATE BLDG CODE COUNCIL.

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PRIMARY ACCESS CODE ILL HNDBK OF HANDICAPPED SECT OF THE NC STATE BLDG COD

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISION
EFF. DATE	09 / 01 / 73		06 / 09 / 81		/ / 82		/ /
BASIS OF CODE	TECH REF	SCOPE AMD REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61	1		STATE OWNED BLDG	X	ASSEMBLY		X X
ANSI A117.1`80			PUBLC OWNED BLDG	X	BUSINESS		X X
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		X X
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		2 2
UFAS			ALTERATIONS	X	HAZARDOUS		X X
OTH NC	1	1	OTH REN/CH OCCU	X	INSTITUTIONAL		X X
					MERCANTILE		X X
					STORAGE		X X
					RESIDENTIAL		2 2
					OTH		

NOTES *-1982 REPRINT INCL. SOME LEGIS., CHANGES & CORRECTIONS TO SMALL ERRORS IN TEXT. WHILE MUCH OF THE NC CODE IS BASED ON ANSI `61, THE STD WAS REWRITTEN, MANY REQRMTS WERE ADDED & THE TEXT WAS FULLY ILLUS. 2-THE CODE APPLIED TO ALL BLDGS, W/ EXCEPT OF: 1-& 2-FMLY DETCHD RES, HISTORIC STRUCTRS, FOR AUTHENTIC RECONSTRC OR RENOV. BLDGS DESIGNED FOR GARAGES W/ ATTENDANTS, HEAVY INDUSTRY & HEAVY STORAGE MAY HAVE REQUIREMENTS WAIVED BY THE LOCAL OFFICIAL.

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISION
EFF. DATE	/ /		/ /		/ /		/ /
BASIS OF CODE	TECH REF	SCOPE AMD REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		
ATBCB `81			PRV OWN PUBL USE		EDUCATION		
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		
UFAS			ALTERATIONS		HAZARDOUS		
OTH			OTH		INSTITUTIONAL		
NOTES					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

DATE COMPLETED 02 / 04 / 83 REVISED 08/02/85

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		*	/ / 84		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES *-THE OHIO BASIC BLDG CODE IS BASED ON THE 1984 BOCA BASIC BLDG CODE AND THE 1985 SUPPLEMENT IS PLANNED FOR ADOPTION IN JAN. 1986.

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DATE COMPLETED 02 / 04 / 83 REVISED 08/02/85 ACCESS NO. 1382 STATE OH

PRIMARY ACCESS CODE ACCESS PROV OF BOCA BBC AS MODI TO CONF TO 3781.111 OH

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISION
EFF. DATE	04 / 09 / 84		/ /		/ /		01 / / 86
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X / *
ANSI A117.1`80	*	*	PUBLC OWNED BLDG	X	BUSINESS		X / *
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		X / *
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL		X / *
UFAS			ALTERATIONS		HAZARDOUS		X / *
OTH BOCA	*	*	OTH		INSTITUTIONAL		X / *
					MERCANTILE		X / *
					STORAGE		X / *
					RESIDENTIAL		X / *
					OTH		

NOTES *-THE CODE APPLIES TO ALL BLDGS OR PORTION THEREOF OPEN TO THE GENERAL PUBLIC WITH THE EXCEPTION OF: APARTMENTS (R-2), SINGLE-FAMILY ROW HOUSE (R-3), COMMERCIAL FACILITIES SMALLER THAN 10,000 SQUARE FEET.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 02 / 04 / 83 REVISED 08/02/85 ACCESS NO. 1382 STATE OH

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE	ON	REVISION 2 FILE	ON	ESTM DATE NEXT REVISIOI
EFF. DATE	/ /		/ /		/ /		/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG		BUSINESS		
ATBCB `81			PRV OWN PUBL USE		EDUCATION		
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		
UFAS			ALTERATIONS		HAZARDOUS		
OTH			OTH		INSTITUTIONAL		
					MERCANTILE		
					STORAGE		
					RESIDENTIAL		
					OTH		

NOTES MANY JURISDICTIONS ALSO HAVE LOCAL ORDINANCES.

DATE COMPLETED 01 / 21 / 83 REVISED 08/05/85 ACCESS NO. 1383 STATE (

STATEWIDE BUILDING CODE -- TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA	*		/ / 81		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES *-THE BOCA CODE IS MANDATORY FOR STATE BLDGS ONLY. HOWEVER, MOST LARGEF CITIES ALSO USE THE SAME CODE.

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ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 2

DATE COMPLETED 01 / 21 / 83 REVISED 08/05/85 ACCESS NO. 1383 STATE (

PRIMARY ACCESS CODE ACCESS PROVISIONS OF BOCA BBC

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE		ON REVISION 2 FILE		ESTM DATE NEXT REVISI(	
EFF. DATE	01 / 02 / 66		01 / / 81		/ /		/ /	
BASIS OF CODE	TECH REF	AMD SCOPE REF	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN	PR\ OWI
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X	
ANSI A117.1`80			PUBLC OWNED BLDG	X	BUSINESS		X	
ATBCB `81			PRV OWN PUBL USE		EDUCATION		X	
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		X	
UFAS			ALTERATIONS	*	HAZARDOUS		X	
OTH BOCA	X	X	OTH S-L BLDGS**	X	INSTITUTIONAL		X	
					MERCANTILE		X	
					STORAGE		X	
					RESIDENTIAL		X	
					OTH			

NOTES THIS CODE APPLIES TO ALL STATE-OWNED AND PUBLICLY OWNED BLDGS EXCEPT WHERE ELEVATORS ARE ECONOMICALLY INFEASIBLE. NO BLDGS ARE SPECIFICALLY EXCLUDED. *-IF ALTERATIONS INCREASE FLOOR AREA BY 25%, THE BLDG MUST COMPLY.
**S-L REFERS TO STATE-LEASED.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 01 / 21 / 83 REVISED 08/05/85 ACCESS NO. 1383 STATE (

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE	ON REVISION 2 FILE	ESTM DATE NEXT REVISI(	
EFF. DATE	/ /		/ /	/ /	/ /	
BASIS OF CODE	TECH REF	AMD SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN	PR\ OWI
ANSI A117.1`61			STATE OWNED BLDG	ASSEMBLY		
ANSI A117.1`80			PUBLC OWNED BLDG	BUSINESS		
ATBCB `81			PRV OWN PUBL USE	EDUCATION		
ATBCB `82			PRV OWN SEE OCC	INDUSTRIAL		
UFAS			ALTERATIONS	HAZARDOUS		
OTH			OTH	INSTITUTIONAL		
NOTES				MERCANTILE		
				STORAGE		
				RESIDENTIAL		
				OTH		

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES THE STATE OF TEXAS HAS NO STATEWIDE BLDG CODE. SOME LOCALITIES ADOPT THEIR OWN BLDG CODES.

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ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 2

DATE COMPLETED 02 / 08 / 83 REVISED 08/06/85 ACCESS NO. 1390 STATE TX

PRIMARY ACCESS CODE ELIMINATION OF ARCH BARRIERS, VERNON'S TX CIVIL STATUT

CODE COMPONENT	BASIC DOCUMENT		ON FILE		ON REVISION 1 FILE		ON REVISION 2 FILE		ESTM DATE NEXT REVISION / /
EFF. DATE	01 / 01 / 70				01 / 01 / 78		04 / 29 / 81		
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61					STATE OWNED BLDG	X	ASSEMBLY		X / 1
ANSI A117.1`80	*		*		PUBLC OWNED BLDG	X	BUSINESS		X / 1
ATBCB `81					PRV OWN PUBL USE	X	EDUCATION		X / 1
ATBCB `82					PRV OWN SEE OCC	X	INDUSTRIAL		X
UFAS					ALTERATIONS		HAZARDOUS		X
OTH TEXAS	*		X		OTH STATE-LEASED	X	INSTITUTIONAL		X / 1
							MERCANTILE		X / 1
							STORAGE		X
							RESIDENTIAL		X
							OTH		

NOTES *-IN 1981 THE TX ACCESS CODE WAS REVISED TO COINCIDE WITH ANSI (1980). THE CODE ALSO CONTAINS INFO FOR DESIGNING ENVIRONMENTS FOR DISABLED CHILDREN. 1-IN REGARDS TO PRIVATELY OWNED BLDGS, THE TX CODE COVERS: SHOPPING CENTERS, TRANSP TERMINALS, THEATERS/AUDITORIUMS (>200 SEATING), HOSPITALS/MEDICAL FACS, NURSING HOMES/CONVALESCENT CENTERS, BLDGS WITH >20,000 SQ FT OF OFC SPACE,

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 02 / 08 / 83 REVISED 08/06/85 ACCESS NO. 1390 STATE TX

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT		ON FILE		ON REVISION 1 FILE		ON REVISION 2 FILE		ESTM DATE NEXT REVISION / /
EFF. DATE	/ /				/ /		/ /		
BASIS OF CODE	TECH REF	AMD	SCOPE REF	AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61					STATE OWNED BLDG		ASSEMBLY		
ANSI A117.1`80					PUBLC OWNED BLDG		BUSINESS		
ATBCB `81					PRV OWN PUBL USE		EDUCATION		
ATBCB `82					PRV OWN SEE OCC		INDUSTRIAL		
UFAS					ALTERATIONS		HAZARDOUS		
OTH					OTH		INSTITUTIONAL		
NOTES							MERCANTILE		
							STORAGE		
							RESIDENTIAL		
							OTH		

STATEWIDE BUILDING CODE - TECHNICAL BASIS #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA		*	/ / 81		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES *-THE VA UNIFORM STATEWIDE BLDG CODE IS BASED ON THE 1981 VERSION OF THE BOCA CODE. CODE CHANGE HEARINGS ARE HELD EVERY THREE YEARS IN THE COMMONWEALTH OF VIRGINIA.

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PRIMARY ACCESS CODE CONTACT INFORMATION PAGE 4
SECONDARY ACCESS CODE CONTACT INFORMATION PAGE 5

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 2

DATE COMPLETED 02 / 19 / 83 REVISED 08/07/85 ACCESS NO. 1393 STATE VA

PRIMARY ACCESS CODE ANSI A117.1-1980 & DIRECTIVE 32 OF DIV OF ENGR & BLDGS

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1	ON FILE	ON REVISION 2	ON FILE	ESTM DATE NEXT REVISION
EFF. DATE	03 / 25 / 81		/ /		/ /		/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	X	ASSEMBLY		X
ANSI A117.1`80	X	X	PUBLC OWNED BLDG		BUSINESS		X
ATBCB `81			PRV OWN PUBL USE		EDUCATION		X
ATBCB `82			PRV OWN SEE OCC		INDUSTRIAL		X
UFAS			ALTERATIONS		HAZARDOUS		X
OTH DIRECT 32		X	OTH		INSTITUTIONAL		X
					MERCANTILE		X
					STORAGE		X
					RESIDENTIAL		X
					OTH		

NOTES "DIRECTIVE 32" MAKES MINOR CHANGES TO ANSI REQUIREMENTS AND SETS SCOPING PROVISIONS.

ATBCB CODES AND STANDARDS REFERENCE FILE PAGE 3

DATE COMPLETED 02 / 19 / 83 REVISED 08/07/85 ACCESS NO. 1393 STATE VA

SECONDARY ACCESS CODE BAR-FREE DES REQ OF VA'S UNIF STATEWIDE BLDG CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1	ON FILE	ON REVISION 2	ON FILE	ESTM DATE NEXT REVISION
EFF. DATE	07 / 16 / 82		/ /		/ /		/ / 89
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY		OCCUP CATEGORIES		PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG		ASSEMBLY		* *
ANSI A117.1`80	X	X	PUBLC OWNED BLDG	X	BUSINESS		* *
ATBCB `81			PRV OWN PUBL USE	X	EDUCATION		* *
ATBCB `82			PRV OWN SEE OCC	X	INDUSTRIAL		* *
UFAS			ALTERATIONS		HAZARDOUS		* *
OTH			OTH		INSTITUTIONAL		* *
					MERCANTILE		* *
					STORAGE		* *
					RESIDENTIAL		* *
					OTH		

NOTES THE NC CODE IS CURRENTLY USED ONLY AS A REFERENCE. *-SECT 515 STATES THAT BLDGS BE DESIGNED TO REQUIREMTS OF ANSI '80 W/ EXCEPTION OF R-3 (1-2 FAM DWELLINGS), R-4 (SINGLE-FAM DETCHD HSNG), STORAGE, & TEMP BLDGS. BLDGS IN THESE CATEGORIES HAVE NOTED EXCEPTIONS: BLDGS <1000 SQ FT W/ ENTRY ABOVE GRADE; BLDGS OF 2 OR MORE STORIES W/ 12,000 SQ FT, ONLY 1ST FLR NEEDS TO COMPLY; BLDGS OF <1000 SQ FT OR BLDGS FOR ASSMBLY OF 50 OR LESS, ONLY "BLDG ACCESS REQMTS" APPLY.

DATE COMPLETED 01 / 15 / 83 REVISED 08/08/85 ACCESS NO. 1395 STATE W

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC			/ /

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PRIMARY ACCESS CODE CONTACT INFORMATION PAGE 4
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DATE COMPLETED 01 / 15 / 83 REVISED 08/08/85 ACCESS NO. 1395 STATE WV

PRIMARY ACCESS CODE CHKLIST & GRAPHIC ILLUS FOR DESIGN FAC ACCESS BY PHY H

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE	ON REVISION 2 FILE	ESTM DATE NEXT REVISION
EFF. DATE	09 / 01 / 74		/ /	/ /	/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN / PRV OWN
ANSI A117.1`61	*		STATE OWNED BLDG X	ASSEMBLY	X / X
ANSI A117.1`80			PUBLC OWNED BLDG X	BUSINESS	X / X
ATBCB `81			PRV OWN PUBL USE X	EDUCATION	X / X
ATBCB `82			PRV OWN SEE OCC X	INDUSTRIAL	X / X
UFAS			ALTERATIONS	HAZARDOUS	
OTH WV	*	*	OTH	INSTITUTIONAL	X / X
				MERCANTILE	X / X
				STORAGE	
				RESIDENTIAL	1 / 1
				OTH	

NOTES *-TECH PROV OF ANSI `61 INCORP INTO A BKLE W/ OTHER MANDATED REQS. 1-WV CODE APPLIES TO ALL PUB BLDGS AND/OR FACS PUB HAS ACCESS, USE & WAY OF TRAVEL, DOESN`T INCLUDE: JAILS; GARAGES,HANGERS & BOATHSES: ALL BLDGS CLASIFIED HAZRD; WARE-RHSES; BLDG FOR FIELD SRVC SUCH AS CONSRVTION FIRE TOWERS, FISH HATCHERIES & TREE NURSERIES; APT HUSES OF < 20 UNITS, TWNHUSES & ROOMINGHUSES; RES HALLS AT UNIVS THAT PROVIDE 2 ACC RES HALLS FOR MEN & WOMEN; CONVENTS & MONASTARIES.

DATE COMPLETED 01 / 15 / 83 REVISED 08/08/85 ACCESS NO. 1395 STATE WV

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	ON REVISION 1 FILE	ON REVISION 2 FILE	ESTM DATE NEXT REVISION
EFF. DATE	/ /		/ /	/ /	/ /
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	ASSEMBLY	
ANSI A117.1`80			PUBLC OWNED BLDG	BUSINESS	
ATBCB `81			PRV OWN PUBL USE	EDUCATION	
ATBCB `82			PRV OWN SEE OCC	INDUSTRIAL	
UFAS			ALTERATIONS	HAZARDOUS	
OTH			OTH	INSTITUTIONAL	
				MERCANTILE	
				STORAGE	
				RESIDENTIAL	
				OTH	

NOTES

DATE COMPLETED 02 / 17 / 83 # # STATEWIDE BUILDING CODE - TECHNICAL BASIS # #

# #	CODE	REF	AMD	DATE	# #	CODE	REF	AMD	DATE
	BOCA			/ /		SBC			/ /
	NBC			/ /		UBC			/ /

NOTES THE WISCONSIN "MINIMUM" CODE SERVED AS THE MODEL FOR THE UBC AND OTHER MODEL CODES. IT IS KNOWN AS THE WISCONSIN ADMINISTRATIVE CODE, CHAPTER ILHR 50-64 BLDG, HEATING, VENTILATING AND AIR CONDITIONING. THE CURRENT EDITION IS 1984-85. AS OF 1/1/86, IT WILL BE 1986-87. IT WAS FIRST ISSUED IN 1914.

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PRIMARY ACCESS CODE CONTACT INFORMATION PAGE 4
SECONDARY ACCESS CODE CONTACT INFORMATION PAGE 5

DATE COMPLETED 02 / 17 / 83 REVISED 08/13/85 ACCESS NO. 1396 STATE WI

PRIMARY ACCESS CODE WI ADM CODE ILHR 52.04 & "REGS FOR BARRIER-FREE ENV"

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE ON	REVISION 2 FILE ON	ESTM DATE NEXT REVISION
EFF. DATE	01 / 01 / 78		01 / 01 / 82	01 / 01 / 84	/ / 86
BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN / PRV OWN
ANSI A117.1`61	X		STATE OWNED BLDG X	ASSEMBLY	X / X
ANSI A117.1`80			PUBLC OWNED BLDG X	BUSINESS	X / X
ATBCB `81			PRV OWN PUBL USE X	EDUCATION	X / X
ATBCB `82			PRV OWN SEE OCC X	INDUSTRIAL	X / X
UFAS			ALTERATIONS X	HAZARDOUS	X / X
OTH WI CO REQ	*	*	OTH	INSTITUTIONAL	X / X
				MERCANTILE	X / X
				STORAGE	
				RESIDENTIAL	1 / 1
				OTH	

NOTES *-THOUGH MANY OF THE TECHNICAL PROVISIONS ARE DERIVED FROM ANSI (1961), THE CODE INCLUDES MANY OTHER PROVISIONS AND SPECIFICIATIONS.

1-THE WISCONSIN ACCESS CODE COVERS "ALL" BLDGS EXCEPT: FEDERALLY OWNED BLDGS; ONE- AND TWO-FAMILY RESIDENCES; PRIVATE FARM BLDGS; LAND HELD IN TRUST BY THE BUREAU OF INDIAN AFFAIRS.

DATE COMPLETED 02 / 17 / 83 REVISED 08/13/85 ACCESS NO. 1396 STATE WI

SECONDARY ACCESS CODE

CODE COMPONENT	BASIC DOCUMENT	ON FILE	REVISION 1 FILE ON	REVISION 2 FILE ON	ESTM DATE NEXT REVISION
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BASIS OF CODE	TECH REF AMD	SCOPE REF AMD	CODE APPLICABILITY	OCCUP CATEGORIES	PUB OWN / PRV OWN
ANSI A117.1`61			STATE OWNED BLDG	ASSEMBLY	
ANSI A117.1`80			PUBLC OWNED BLDG	BUSINESS	
ATBCB `81			PRV OWN PUBL USE	EDUCATION	
ATBCB `82			PRV OWN SEE OCC	INDUSTRIAL	
UFAS			ALTERATIONS	HAZARDOUS	
OTH			OTH	INSTITUTIONAL	
NOTES				MERCANTILE	
				STORAGE	
				RESIDENTIAL	
				OTH	

EXHIBIT FOUR

HANDICAP CIVIL RIGHTS STATUTES

U.S. COMMISSION ON CIVIL RIGHTS

ACCOMMODATING THE SPECTRUM OF INDIVIDUAL ABILITIES

APPENDIX B

Appendix B
Handicap Civil Rights Statutes

Methodology

The following list of U.S. Code provisions was compiled mainly through use of the JURIS system, a computerized legal research system maintained by the Department of Justice, as well as with reference to the General Accounting Office's 1978 publication, *A Compilation of Federal Laws and Executive Orders for Nondiscrimination and Equal Opportunity Programs.*

This list includes measures that prohibit discrimination on the basis of handicap, ensure equal opportunity without regard to handicap, or require affirmative action for handicapped individuals in programs not specifically targeted for the handicapped. It includes not only general requirements, but also specific ones that condition the receipt of certain funds or participation in certain programs. As a result, some of the statutes provide broad and sometimes overlapping protections (e.g., 29 U.S.C. §794, prohibiting discrimination on the basis of handicap in any program or activity receiving Federal financial assistance, covers the social services and elementary and secondary education block grants created by the Omnibus Budget Reconciliation Act of 1981 as well as block grant programs created by that law with specific handicap antidiscrimination prohibitions). The list excludes many handicap laws with civil rights provisions or objectives, such as 29 U.S.C. §791(c) (1976), as amended by Reorg. Plan No. 1 of 1978, §4, 42 U.S.C. 2000e–4 note (Supp. V 1981), requiring the U.S. Equal Employment Opportunity Commission and the Office of Personnel Management to develop for referral to State agencies policies and procedures to facilitate employment of handicapped persons. The list also excludes provisions requiring the setting of standards to avoid handicap discrimination, such as 42 U.S.C. §4152 (1976 & Supp. V 1981), requiring the setting of Federal standards with regard to architectural barriers. Also excluded are service programs aimed specifically at handicapped persons, although some of these programs, including those that provide education and training, may be essential for attaining civil rights objectives.

Some provisions listed are permanent (e.g., 29 U.S.C. §794, prohibiting discrimination on the basis of handicap in any program or activity receiving Federal financial assistance). Others, such as those nondiscrimination sections listed

below under the Omnibus Budget Reconciliation Act of 1981, remain in force only as long as the specific programs continue to exist.

All statutes listed refer to the classification of handicap. The list does not include statutes dealing with specific kinds of handicaps, such as 42 U.S.C. §4581 (1976), prohibiting discrimination against alcohol abusers and alcoholics in admission or treatment by hospitals receiving Federal funds; 20 U.S.C. §1684 (1976), prohibiting discrimination against blind people in federally funded education programs or activities; 30 U.S.C. §938 (1976 & Supp. V 1981), prohibiting discrimination by mine operators against sufferers of pneumoconiosis (black lung disease); and 38 U.S.C. §801 (1976 & Supp. V 1981), providing assistance to disabled veterans in acquiring or adapting housing needed because of the disability. Finally, all statutes are listed without reference to the availability of administrative or private enforcement mechanisms.

Civil Service Reform Act of 1978

5 U.S.C. §2302(b)(1)(D) (Supp. V 1981) (prohibits personnel actions that discriminate on the basis of handicapping condition, as prohibited under section 501 of the Rehabilitation Act of 1973).

5 U.S.C. §7116(b)(4) (Supp. V 1981) (makes it an unfair labor practice for labor organizations representing Federal employees to discriminate on the basis of handicapping condition with regard to membership in the labor organization).

5 U.S.C. §7203 (Supp. V 1981) (empowers the President to prescribe rules prohibiting discrimination because of handicapping condition in certain types of Federal employment).

Full Employment and Balanced Growth Act

15 U.S.C. §3151(a) (Supp. IV 1980) (prohibits discrimination on the basis of handicap in any program or activity funded under the Full Employment and Balanced Growth Act).

Education of the Handicapped Act

20 U.S.C. §1412 (1976) (requires State, in order to qualify for assistance under this act, to have a policy and a plan for assuring all handicapped children the right to a free appropriate public education).

20 U.S.C. §1413 (1976) (requires State plans to set policies and procedures to assure that assistance provided under this act will be utilized in a manner consistent with the goal of providing a free appropriate public education for all handicapped children).

Foreign Service Act of 1980

22 U.S.C. §3905(b)(1) (Supp. V 1981) (prohibits discrimination based on handicapping condition in the Foreign Service).

22 U.S.C. §4115(b)(4) (Supp. V 1981) (makes it an unfair labor practice for a labor organization to discriminate on the basis of handicapping condition against an employee of the Department of State).

Federal-Aid Highway Act of 1973

23 U.S.C. §142 note (1976) (Bus and Other Project Standards) (requires projects using Federal highway funds to be planned, designed, constructed, and operated to permit use by handicapped persons).

23 U.S.C. §402(b)(1)(E) (Supp. V 1981) (prohibits approval of State highway safety programs that do not provide access for handicapped persons to move safely and conveniently across curbs).

Rehabilitation Act of 1973

29 U.S.C. §791(b) (1976) (requires each Federal agency to develop affirmative action program plans for the hiring, placement, and advancement of handicapped persons).

29 U.S.C. §793 (1976 & Supp. V 1981) (requires Federal contracts and subcontracts over $2,500 to contain provisions requiring contractors to take affirmative action to employ and advance handicapped persons).

29 U.S.C. §794 (Supp. V 1981) (prohibits discrimination on the basis of handicap in any program or activity receiving Federal financial assistance).

Job Training Partnership Act

29 U.S.C.A. §1577(a)(1) (West Supp. 1982) (provides that programs and activities financially assisted under the Job Training Partnership Act are considered to receive Federal financial assistance for purposes of applying 29 U.S.C. §794 prohibitions against discrimination on the basis of handicap).

29 U.S.C.A. §1577(a)(2) (West Supp. 1982) (prohibits exclusion from participation, denial of benefits, and employment and other discrimination on the basis of handicap in programs receiving funds under this act).

General Accounting Office Personnel Act of 1980

31 U.S.C.A. §732(b)(2) (1983) (prohibits personnel practices prohibited in 5 U.S.C. §2302(b), including discrimination based on handicap).

State and Local Fiscal Assistance Amendments of 1976

31 U.S.C.A. §6716(b)(2) (1983) (prohibits discrimination based on handicap in any program or activity funded under the State and Local Fiscal Assistance Amendments of 1976).

Omnibus Budget Reconciliation Act of 1981

42 U.S.C. §300w-7(a)(1) (Supp. V 1981) (prohibits discrimination based on handicap in programs and activities funded under preventive health and health services block grants).

42 U.S.C. §300x-7(a)(1) (Supp. V 1981) (prohibits discrimination based on handicap in programs and activities funded under alcohol and drug abuse and mental health services block grants).

42 U.S.C. §300y-9(a)(1) (Supp. V 1981) (prohibits discrimination based on handicap in programs and activities funded under primary care block grants).

42 U.S.C. §708 (Supp. V 1981) (prohibits discrimination based on handicap in programs and activities funded under maternal and child health services block grants).

42 U.S.C. §5309(a) (Supp. V 1981) (prohibits discrimination based on handicap in programs and activities funded under community development programs).

42 U.S.C. §9849(c) (Supp. V 1981) (prohibits the Secretary from providing funds under the Head Start program unless the grant or contract specifically provides that no persons with pro-

gram responsibilities will discriminate against any individual on the basis of handicapping condition).

42 U.S.C. §9906(a) (Supp. V 1981) (prohibits discrimination based on handicap in any program or activity funded under the community services block grant program).

Domestic Volunteer Service Act Amendments of 1978

42 U.S.C. §5057(a) (Supp. V 1981) (prohibits financial assistance under the ACTION program unless the grant, contract, or agreement specifically provides that no person with program responsibilities will discriminate on the basis of handicap).

42 U.S.C. §5057(c)(1) (Supp. V 1981) (requires the application of nondiscrimination provisions in title V of the Rehabilitation Act of 1973, [29 U.S.C. §§791-794] to applicants and volunteers under the Domestic Volunteer Service Act and the Peace Corps Act [22 U.S.C. §2501-2519 (1976 & Supp. v 1981), as amended by 22 U.S.C.A. §§2501-2517 (West Supp. 1982)]).

Developmental Disabilities Assistance and Bill of Rights Act

42 U.S.C. §6005 (1976) (requires recipients of assistance under this legislation to take affirmative action to employ and advance handicapped persons).

42 U.S.C. §6063(b)(5)(C) (Supp. V 1981) (requires State plans to assure protections consistent with the rights enumerated in §6010, including the provision of treatment, services, and habilitation in the least restrictive settings).

Urban Mass Transportation Act of 1970

49 U.S.C. §1612(a) (1976), as amended by 49 U.S.C.A. §1612(c) (West Supp. 1982) (in conjunction with 29 U.S.C. §794 of the Rehabilitation Act, requires States receiving Federal funds for mass transit to make special efforts in the planning and design of mass transit facilities and services to accommodate handicapped persons).

EXHIBIT FIVE

REGULATORY IMPACT ANALYSIS

DOT SECTION 504 REGULATION

URBAN MASS TRANSIT

U.S. DEPARTMENT OF TRANSPORTATION
OFFICE OF THE SECRETARY

FINAL
REGULATORY IMPACT ANALYSIS

THE DEPARTMENT OF TRANSPORTATION'S REGULATION IMPLEMENTING SECTION 504 OF THE REHABILITATION ACT OF 1973 IN THE URBAN MASS TRANSIT PROGRAM

DECEMBER 1985

REVISED 5/13/86

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EXECUTIVE SUMMARY

I. Introduction

The final rule implementing section 504 of the Rehabilitation Act of 1973 requires recipients of federal transit assistance to provide transportation services for handicapped persons. This regulation is a major rule and the Department is required by Executive Order 12291 to issue this Final Regulatory Impact Analysis in support of the rulemaking. The analysis includes: (1) a description of the potential benefits of the rule and an identification of those likely to receive the benefits; (2) a description of the potential costs of the rule, including adverse effects that cannot be quantified in monetary terms, and an identification of those likely to bear the costs; (3) a description of alternative approaches that were considered that might substantially achieve the same regulatory goal; and (4) an overview of the regulatory history and court decisions which have led to the issuance of this rule. The analysis also includes consideration of impacts on small entities, as called for by the Regulatory Flexibility Act.

II. Background

Statutes

Section 504 of the Rehabilitation Act of 1973 (29 U.S.C. Section 794) provides that

> No otherwise qualified handicapped individual...shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or subjected to discrimination under any program or activity receiving federal financial assistance....

Section 16(a) of the Urban Mass Transportation Act of 1964 (UMT Act; 49 U.S.C. Section 1612(a)) declares that it is a national policy that "special efforts shall be made...so that the availability to elderly and handicapped persons of mass transportation which they can effectively utilize will be assured..." Section 317(c) of the Surface Transportation Assistance Act of 1982 (STAA) amended section 16 by adding a new subsection (d). This new subsection directed the Department to promulgate a regulation, carrying out both section 16 and section 504, which included "minimum criteria for the provision of transportation services to handicapped and elderly individuals by recipients of financial assistance under [the UMT Act]...."

Regulatory History

In 1976, UMTA published a regulation requiring recipients of federal transit aid to make special efforts to provide transportation service for elderly and handicapped persons. The regulation did not include specific requirements but provided guidance on several possible approaches a recipient could take to comply with the regulation.

In 1979, the Department replaced the special efforts rule with a series of requirements for making bus and rail mass transit accessible to handicapped persons. One-half of all new buses operated in peak-hour service had to be equipped with lifts within ten years, and all further buses purchased were also to be lift-equipped, until 100 percent of the operator's fleet was accessible. Existing rail systems had to be retrofitted for accessibility (e.g., elevators installed in subway stations) within 20 to 30 years.

The American Public Transit Association (APTA) challenged DOT's proposed rule in the courts and, in May of 1981, the Court of Appeals for the District of Columbia ruled for APTA. The essence of the court's ruling was that DOT's rule imposed undue financial burdens on transit authorities. The court held that Section 504 might require a transit authority to make "modest affirmative steps to accommodate handicapped persons," but that the 1979 rule required massive cost changes that were not authorized by the statutes.

To replace the 1979 rule, the Department published an interim final rule (IFR) in July 1981. The IFR revived, with minor modifications, the 1976 special efforts regulation, and was intended to remain in effect only until a final regulation could be adopted. Congressional dissatisfaction with the transportation services provided under the IFR was a major reason for passage of section 317(c) of the STAA in 1982 requiring DOT to issue a rule providing criteria for compliance.

III. The NPRM

In September of 1983, DOT responded to this requirement by publishing a notice of proposed rule making (NPRM). The NPRM offered recipients three alternative service options to comply with the rule:

A. Make 50 percent of fixed-route bus service accessible;

B. Establish a demand-responsive specialized transportation service;

C. Choose a combination of accessible bus and special services.

Under the NPRM, recipients that opted to provide specialized demand-responsive transportation would have had to establish eligibility criteria such that all persons who by reason of handicap are unable to use the recipient's regular bus service would be permitted to use the specialized service.

In addition, recipients were required to meet six minimum service criteria, though they would not be required to spend more than a specified cost limit. The criteria are outlined as follows:

A. Service would have to be available to handicapped persons throughout the same general service area as the recipient's regular transit service for the general public.

B. Service would have to be available on the same days and during the same hours as the recipient's service for the general public.

C. The fare for a handicapped person using the specialized service would have to be comparable with, but not necessarily identical to, the fare for the general public using the recipient's regular service.

D. There could not be restrictions or priorities on the trip purposes of handicapped persons.

E. The waiting time between a request for and the provision of service would have to be limited to a "reasonable time" to be determined by the recipient, after consultation with the local handicapped community.

F. Operators could not refuse service to eligible users and place them on waiting lists.

In order to avoid placing undue financial burdens on recipients, the NPRM proposed a cost cap or maximum limit on the amount a recipient could be required to spend in a given year. If a recipient could not meet all six criteria within the cost cap, it could make trade-offs among all aspects of service to avoid spending more than the cost cap amount. However, trade-offs in eligibility would not be allowed.

The NPRM proposed two alternative ways of calculating the cost cap:

- 7.1 percent of the recipient's average annual federal assistance for the current and two previous fiscal years; or

- 3.0 percent of the recipient's average annual total operating expenses over the current and previous two fiscal years.

IV. The Preliminary Regulatory Impact Analysis (PRIA)

This PRIA, which was issued in connection with the NPRM, included assessments of (1) the potential national benefits and costs of the proposed rule; (2) identification of those likely to receive the benefits and those likely to bear the costs; (3) evaluation of alternative approaches to achieve the regulatory goal; (4) evaluation of the procedural alternatives and certification methods necessary to assure regulatory compliance; and (5) analysis of the potential regulatory impacts on small entities required by the Regulatory Flexibility Act. Cost estimates in the PRIA were simply ranges of cost estimates based on data provided by CBO, DOT, and the transit industry.

V. Comments on the NPRM

DOT received 650 comments on the NPRM, largely from handicapped persons and their groups and from transit operators. In general, handicapped persons wanted more specificity and higher standards in the service criteria and the elimination of the cost limits. The operators wanted more flexibility at the local level in determining appropriate service for the handicapped, and they wanted lower limits on required expenditures.

VI. Regulatory Objectives

The Department has four primary objectives in establishing the final rule to implement section 504. They are

A. To comply with the statutes and court decisions governing implementation of mass transit services for handicapped persons.

B. To ensure that handicapped persons can use public transportation services on a nondiscriminatory basis, and to improve the availability and quality of the service to this market.

C. To ensure that local communities have sufficient flexibility in providing transportation to handicapped persons so that they can minimize the associated costs and tailor the services to the needs of handicapped persons in their communities.

D. To establish a reasonable level of service criteria and set a predictable limit on the costs which transit authorities would have to incur to comply with the regulations, so as not to require burdensome alterations in recipients' services or create undue financial hardships.

VII. Final Regulatory Impact Analysis

In order to address the issues raised in comments on the NPRM, and to update the cost projections of the Preliminary Analysis, the Department has conducted additional research studies to prepare this Final Regulatory Impact Analysis. The Analysis includes assessments of the potential regulatory costs -- nationwide and at the local level -- of meeting the service criteria under alternative service approaches, and comparison of these costs with the expenditure levels generated off of the alternative 7.1 and 3.0 percent cost limits.

In conducting the analysis, the Department used two different methods for estimating the compliance costs of the final rule. One method consisted of conducting detailed case studies of the actual costs of existing service for the handicapped in seven selected cities and estimating the cost impacts on these cities of adjusting present service levels to comply with the rule. These cities are:

Cleveland, Ohio (transit authority-operated paratransit and supplementary taxi service)

Pittsburgh, Pennsylvania (privately brokered paratransit and user-side subsidy services with private for-profit and non-profit providers)

Kansas City, Missouri (user-side subsidy taxi service with private for-profit and non-profit providers)

Seattle, Washington (lift-buses on 53 percent of routes with supplementary specialized transportation services)

Akron, Ohio (combined system of paratransit and lift-bus services)

Brockton, Massachusetts (paratransit operated by non-profit provider)

Hampton/Newport News, Virginia (transit authority-operated paratransit and supplementary taxi service)

The other method was to use a computer model based on data from 53 UMTA transit recipients providing special services for the handicapped. The model provides estimates of the annual costs of meeting the rule for an average transit system in average-sized cities in each of four population size groups.

There are estimates for all three service options and for selected variations in the service criteria. The data from the 53 systems were also used to estimate the aggregate national cost of complying with the final rule.

The data from the case study analysis are summarized in Table I.

TABLE I
ANNUAL COSTS IN CASE STUDY SYSTEMS
ADJUSTED TO MEET THE SERVICE CRITERIA
(In thousands of 1983 dollars except as noted)

City	Current Costs	Adjusted Costs	7.1% Cap	3.0% Cap	2.0% Cap
Cleveland (1982)	3900	3119	2900	3189	600
Pittsburgh (1982-83)	2793	2698	7980	3906	668
Seattle	1218	1200	2500	3200	688
Kansas City, Missouri (1982-83)	1079	555	667	783	188
Akron, Ohio	1145	242	312	247	88
Hampton, Virginia (1982-83)	93	103	206	162	58
Brockton, Massachusetts (1982-83)	585	245	129	150	36

The current cost figures are the total costs supporting existing service for elderly and handicapped users, whether or not the service fully meets the service criteria and eligibility requirements of the rule. The adjusted costs are the Department's estimate of what it would cost each system to comply with all service criteria and the eligibility requirement (assuming the eligible user population for specialized transportation services is limited to disabled persons who physically are unable to use the existing bus service. The costs cited are total costs. The case study systems were credited with all capital costs incurred since the Department's 1979 accessibility rule, and although annualized, potentially overstate actual compliance cost under the final rule. The 7.1% cost limit is based on UMTA 1984 Section 9 transit grant apportionments and Section 3 capital funds. The 3.0% cost limit is based on 1983 total operating expenses. The 2.0% federal assistance cost limit, based on UMTA 1984 Section 9 grant apportionment funds, was suggested in a transit industry comment.

The results from the model analysis are as follows:

TABLE II
ANNUAL COSTS OF COMPLIANCE FOR SYSTEMS
IN AVERAGE-SIZED CITIES NATIONWIDE
(in thousands of 1983 dollars)

City Size	Para-transit	User-side Subsidy Taxi	50% Lift-Bus	7.1% Cap	3.0% Cap
Less than 250,000	247	92	35	75	61
250,000-500,000	393	126	160	184	193
500,000-1,000,000	515	155	300	506	506
Over one million[1]	1,016	196	960	3,456	2,408

The figures for transit authority-operated paratransit and user-side taxi systems project the cost as close as possible, given the available data of meeting the service criteria and eligibility requirements of the final rule. The user-side subsidy costs assume that supplementary lift-equipped vehicle service would be provided for persons unable to use taxis. The lift-bus figures assume 50 percent accessibility over a six-year phase-in period and a 20 percent spare ratio. These figures may be high compared to actual compliance costs since the final rule does not require a specific percentage of buses to be lift-equipped. The 7.1 percent cap is based on total UMTA 1983 federal transit assistance. The 3.0 percent cap is based on the UMTA recipients' total operating costs in 1981-82 as reported under Section 15 of the UMTA Act.

Results of the Analysis

Looking first at the case study results in Table I, it is interesting to note that the present program expenditures are higher in four case study systems (Cleveland, Kansas City, Akron, and Brockton) than either of the proposed limits on required expenditures. These systems have been voluntarily providing services at a higher cost than is mandated by current federal regulations or would be necessary to spend under the new final

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[1] Excludes the costs for New York, Chicago, Los Angeles, Philadelphia, San Francisco and Boston.

rule. Comparison of the current annual program costs (modified to meet the service criteria) indicates that six of the seven case study systems could realize cost reductions ranging from approximately 3 percent in Pittsburgh to about 80 percent in Akron, if they tailored their services to meet the service criteria. Adjustments in the ridership on these systems to limit the eligible user population (as required by the final rule) to disabled persons who are physically incapable of using the regular bus service for the general public accounts for most of the cost savings.

Six of the seven case systems (all except the paratransit system of Brockton) could probably comply with the rule and meet all service criteria requirements for less than the 3.0 percent cost limit on total operating expenses. Five of the seven could probably comply with the rule for less than the 7.1 percent federal assistance cost limit. The exceptions are Cleveland and Brockton -- both of which provide publicly-operated paratransit. Both systems own their paratransit vehicle fleets, and their annual capital expenses are the highest among the case study systems. (Note: Capital cost estimates include all acquisitions from 1979 to present, and although annualized, potentially overstate actual annual compliance cost under the rule.) Also, Cleveland and Brockton are more generous in granting eligibility to particular handicapped subgroups than other systems in the sample. For this reason, the ridership in these two systems was not reduced by as great a proportion as was the case in other systems when adjustment was made to conform to the eligibility requirement of the rule. It is possible that if eligibility and capital costs are limited in accordance with the regulatory requirement and some trade-offs are made in the service criteria, the costs in one of the two systems (Cleveland) might be brought in line with both cost limit amounts.

Collectively, the case study results suggest that the proposed approaches to limiting recipients required expenditures are reasonably related to the provision of handicapped transportation meeting the final rule's service criteria, and that the cost burdens in a majority of the systems could be lower under the final rule than they are now.

Table II displays the model estimates of the annual costs of compliance and the cost limits for average-sized transit systems in four city-size categories. The data indicate that both 50 percent lift-bus and user-side subsidy taxi, meeting all service requirements of the final rule, could be provided by systems in virtually all cities over 250,000 population for less than either of the proposed cost limits. The user-side subsidy approach would be less costly in all but the smallest systems. Publicly-operated paratransit meeting the service criteria would represent the most costly service alternative, and only systems in large cities (over

about 700,000 population) could provide paratransit in full compliance with the service criteria while not exceeding the cost limits.

Transit systems in small cities would have the most difficult time meeting the criteria for less than the cost limits. According to Table II, small systems serving populations under 250,000 would be able to do so only by using an accessible bus system.

The 3.0 percent cost limit on total operating expenses results in lower or equivalent expenditure levels in three of the four city size groups.

Summary Comparison

Collectively, the results in Tables I and II reveal wide variations between the model estimates and the costs from the various case study systems. Such variation should not be surprising, since the model is founded on an attempt to depict "average" systems. The case study figures come from specific actual transit authority estimates, the individual differences of which from an "average" system are likely to be substantial.

There are a number of reasons for the cost differences between the case study and model estimates. In addition to the distinction between "average" systems in the model and actual experience in different cities, the cost differences may be attributable in part to the fact that, in general, the case study systems provide response times of less than 24 hours while the model posits response times of 24 hours. Also, the case study systems appear more generous in their eligibility requirements than are the systems in the model. In addition, case study paratransit systems are credited with all capital costs from 1979 to present, which potentially overstates the actual annual compliance cost under the final rule.

Paratransit

With respect to paratransit, the two approaches give somewhat different results. Estimates from the model suggest that transit systems serving large cities (over 700,000 population) could provide publicly-operated paratransit services that meet the service criteria for less than either of the cost limits. The case studies, which in general, show higher paratransit costs than does the model, cast some doubt on this finding. As discussed above, there are a number of reasons for the differences between the case study numbers and the model numbers, and the two sets of estimates should be looked at as a reasonable range of the potential compliance costs of paratransit. In any event, the analysis suggests that most transit systems would have a more difficult time providing paratransit service meeting all the criteria within the cost limits than if they used other approaches to providing such service (e.g., user-side subsidies, non-profit providers).

Lift-equipped buses

The data suggest that systems in virtually all cities could mee all the service criteria within the cost limits by equipping 50 percent of their bus fleets with wheelchair lifts. The Depart- ment's cost estimates for 50 percent lift-bus service are likel to be higher than the actual compliance costs because the final rule does not require recipients to equip a specific percentage buses with lifts. Consequently, the Department believes that i estimates provide a reasonable upper limit of lift-bus complian costs under the final rule.

User-Side Subsidy

The analysis suggests that user-side subsidy service can be provided by transit systems in all but the smallest cities in f compliance with the service criteria and within the cost limits The data also suggest that, in all but the smallest cities, use side subsidy service is a much less costly approach to meeting service criteria than any other alternative examined.

Collectively, these findings indicate that it is proportionatel much easier for systems in larger cities to provide service meeting all criteria for less than the cost limit amounts than is for smaller systems. The whole range of estimates generated from the model and the case studies should be looked at as a reasonable range of the potential costs of complying with the final rule. These results also suggest that the proposed approaches to limiting recipients' required expenditures are reasonably related to the provision of accessible services at full performance level specified in the final rule. Moreover, based on the actual experience in case study systems, it appea that many recipients might realize reductions in their current program costs supporting handicapped travel by tailoring their services to comply with the rule.

TABLE III
NATIONWIDE 30-YEAR PRESENT VALUE OF COMPLIANCE COSTS

Paratransit	$.98 billion
50% Lift-bus	$.69 billion
7.1 cost cap	$2.72 billion
3.0% cost cap	$2.37 billion

All costs are in 1983 dollars.

The costs in Table III are estimated by the model for systems in all cities, including the six largest, and are presented as though all systems choose one approach or the other. The 7.1 percent cap is based on total UMTA 1983 assistance. The 3.0 percent cap is based on UMTA recipients' total operating costs in 1983. The service costs include the same service criteria assumptions as Table 2, except that the hourly operating expense for paratransit service represents the average of the 53 systems in the database.

National Compliance Cost of Final Rule

On a long-term basis, the estimates in Table 3 suggest that the 30 year present value of recipients' aggregate maximum cost exposure under a 3.0 percent operating budget cost limit would be less than that under a 7.1 percent of total federal transit aid alternative (assuming a constant real-dollar federal aid budget). Moreover, the 30 year present value of aggregate compliance costs for either publicly-operated paratransit or 50 percent lift-bus service is far less than either of the spending levels generated by the cost limits. (These compliance costs are based on the assumption that all recipients adopt one approach or the other.) The present value cost for the user-side subsidy option was not estimated, but could be expected to be lower than the paratransit option and, possibly, the lift-bus option as well. In all likelihood, the actual overall compliance costs will involve a mix of lift-bus and special services. Assuming that recipients will choose the less costly alternatives of lift-bus and subsidized taxi services, it appears probable that the actual compliance cost nationwide would be about the same as the lift-bus projection, or $0.7 billion.

The argument put forth by the American Public Transit Association (APTA) contended that transit authorities would have to spend at the cost limits, particularly for the paratransit option, and that this would increase expenditures five to tenfold above the spending levels suggested by the interim final rule. (APTA estimated this increase by contrasting the amounts generated by the 7.1 and 3.0 percent cost limits to 3.5 percent of Section 5 funding suggested by the interim rule.) APTA's estimates failed to take into account the actual expenditures of transit authorities (often more than the 3.5 percent level) and service alternatives to paratransit that would permit compliance for less than the maximum cost levels. If all recipients had spent 3.5 percent of 1983 Section 5 funds on accessible services, the total cost to the industry would have been $42 million. Our studies suggest that the potential annual compliance cost to the industry for 50 percent lift-bus or user-side subsidy service would be $63 million (in undiscounted 1983 dollars). Therefore, the potential cost of the rule is not on the order of a five to tenfold increase, but it is admittedly higher than the cost of the interim rule. This is consistent with the intent of Congress in section 317(c), however. In any case, the national cost projections for the final rule are much lower than those of the Department's 1979 rule, which the Court, in APTA v. Lewis determined to impose financial burdens on the transit industry.

CHAPTER I

INTRODUCTION

I. REGULATORY BACKGROUND

A. Statute and Regulatory History

Section 504 of the Rehabilitation Act of 1973 provides that "no otherwise qualified handicapped individual . . . shall, solely by reason of his handicap, be excluded from the participation, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance . . . ."

Section 16(a) of the Urban Mass Transportation Act of 1964 dictates that it is a national policy that "special efforts shall be made . . . so that the availability to elderly and handicapped persons of mass transportation which they can effectively utilize will be assured . . . ."

The Department's existing regulation to implement this statute, as well as section 16(a) of the Urban Mass Transportation Act of 1964 and section 165(b) of the Federal Aid Highway Act of 1973, is 49 CFR Part 27. This regulation was originally published in 1979. The regulation prescribed various planning and other administrative requirements, prohibited employment discrimination on the basis of handicap, and imposed general requirements for the accessibility of DOT-assisted programs and activities to handicapped persons and specific accessibility requirements for federally aided highways, airports, intercity rail service, and mass transit.

The 1979 regulation, as applied to mass transit, was costly and controversial. The American Public Transit Association (APTA) and several of its members sued the Department in June 1979, alleging that the mass transit requirements of the 1979 rule exceeded the Department's authority and were arbitrary and capricious. The U.S. District Court for the District of Columbia upheld the rule, but the Court of Appeals for the District of Columbia Circuit reversed the District Court's decision (American Public Transit Association v. Lewis, 556 F.2d 1271 (D.C. Cir., 1981)). The Court of Appeals held that, under section 504, a transit authority might be "required to take modest, affirmative steps to accommodate handicapped persons" in order to avoid the discrimination which section 504 prohibits. However, in the Court's view, the regulation required extensive and costly affirmative action efforts to modify existing transit systems and, therefore, exceeded the Department's authority under the statute.

In the meantime, the Presidential Task Force on Regulatory Relief had identified the Department's proposed mass transit requirements for priority review. As part of this review, the Department established a clear policy on mass transit for handicapped persons. This policy stated that provision of transportation for handicapped persons was an obligation of federally assisted transit systems, but the major responsibility for deciding how this transportation should be provided should be in the hands of local communities. Following the establishment of this policy and the Court decision, the Department issued an interim final rule in July 1981, which deleted the mass transit requirements of the original regulation and substituted a new section. The new section required recipients to certify that special efforts were being made in their service areas to provide transportation for handicapped persons. An appendix to the regulation provided advisory guidance on acceptable levels of efforts. The interim final rule was designed as a temporary measure to remain in effect only until a permanent regulation could be adopted.

At the time it issued the interim final rule, the Department indicated that it would be developing a Notice of Proposed Rulemaking (NPRM) addressing the provision of mass transit service for handicapped persons and general provisions of the rule concerning highway, railroad, and airport programs, if changes in those sections were deemed necessary. Comments were solicited on all sections of the 1979 rule and the interim final rule, and approximately 300 were received.

Subsequently, Congress enacted section 317(c) of the Surface Transportation Assistance Act of 1982. Section 317(c) directs the Secretary to publish proposed regulations implementing section 504 and establishing "(1) minimum criteria for the provision of transportation services to handicapped and elderly individuals by recipients of federal financial assistance under this Act or any provision of law referred to in section 165(b) of the Federal-aid Highway Act of 1973, and (2) procedures for the Secretary to monitor recipients' compliance with such criteria."

B. <u>The Notice of Proposed Rulemaking (NPRM)</u>

In September 1983, the Department published a Notice of Proposed Rulemaking to replace the interim final rule with a new regulation consistent with section 317(c). The NPRM proposed minimum criteria for the provision of mass transit services to handicapped persons, a requirement for public participation in the establishment of such services, and a mechanism through which the Department could monitor the compliance with the regulation of transit providers receiving financial assistance from the Department.

1. Accessible Service Options

The NPRM proposed three service options for recipients to satisfy their obligation to provide transportation for handicapped persons.

Recipients could meet their regulatory obligation by providing service consistent with any one of the three options.

(a) Make 50% of fixed-route bus service accessible.

(b) Establish a demand-responsive paratransit or other type of specialized transportation service for handicapped persons.

(c) Choose a mix of fixed-route accessibility and specialized transportation service.

2. Service Criteria Requirements

The rule spelled out seven service criteria which were tailored to special service systems. The NPRM asked for comments on how these criteria would apply to accessible bus systems.

(a) All persons unable, by reason of handicap, to use the recipient's regular bus service for the general public would be eligible for special service.

(b) Service would have to be available to handicapped persons throughout the same general service area as the recipient's fixed-route service for the general public.

(c) Service would have to be available on the same days and during the same hours as the recipient's service to the general public.

(d) The fare for a handicapped person using the specialized service would have to be comparable with, but not necessarily identical to, the fare for a member of the general public using the recipient's regular service.

(e) There could not be trip purpose priorities or restrictions that do not apply to the general public's use of the recipient's regular service.

(f) The waiting time between a request for and the provision of service would be limited to a "reasonable time" to be specified by the recipient, after consultation with the local handicapped community through the public participation process.

(g) Operators could not refuse service to eligible users and place them on waiting lists.

3. Cost Caps

In order to avoid the imposition of undue financial burdens on recipients, the NPRM proposed a "cost cap". The Department proposed two alternative ways of calculating a cap: 7.1 percent of the recipient's average federal transit assistance or 3.0 percent of the recipient's average total operating budget, over the current and two preceding fiscal years. These caps determine the maximum amount a transit operator needs to spend in providing service for disabled persons. If a recipient cannot meet all criteria within the cost caps, it may, if it wishes, make trade-offs among all aspects of service until costs fall to that level. In deciding service trade-offs, the recipient would be required to obtain the views of handicapped persons and their organizations through the local participation process. Trade-offs in eligibility standards would not be allowed.

C. Underlying Basis of the Regulation: Legislative and Judicial Requirements

This regulation implements both section 504 of the Rehabilitation Act and section 16 of the UMTA Act. The minimum service criteria represent the Department's response to legislative policy established in section 317(c) of the Surface Transportation Assistance Act of 1982, which created section 16(d) of the UMTA Act. The limit on required expenditures, on the other hand, represents the Department's response to judicial construction of section 504, stating that the Department must not impose undue financial burdens on recipients.

The legislative history of section 317(c) requires the Department to establish minimum criteria to ensure an adequate level of transportation service, to remedy "widespread deficiencies" in service for handicapped persons found by a General Accounting Office study of compliance with the 1981 interim final rule. The judicial construction of section 504 addresses the level of financial responsibility that the government can impose upon a state or public agency in regulating its activities.

The concept of "undue hardship" is derived from but not well developed in the case law. The cost standard developed in the proposed regulation is, in effect, a surrogate for the approximate level above which expenditures by a recipient of federal transit subsidy would create an undue hardship.

D. Preliminary Regulatory Impact Analysis

In conjunction with the issuance of the Notice of Proposal Rulemaking, the Department published a Preliminary Regulatory Impact Analysis (PRIA) projecting the potential national costs of the proposed rule. The PRIA based its cost estimates for both

accessible bus and paratransit alternatives on projections from the Department's 1979 accessibility rule, the CBO 1979 report on urban transportation alternatives for handicapped persons and transit industry data. The cost projections varied across a wid range reflecting differences in the assumptions used in these studies about the size of the handicapped population potentially eligible for special services, and whether service criteria woul be federally mandated or left to local decision. The PRIA consistently converted all cost projections to 1981 constant dollar and discounted them over thirty years. However, these estimates do not account for the decline in the value of the dollar which has occurred between 1981 and 1983. Also, estimates for the accessible bus option assumed that 100 percent of the transit bus fleet would have to be equipped with wheelchair lifts. The Department subsequently adopted a 50 percent lift-bus option in the NPRM, and thus, the PRIA potentially overstated the maximum cost of regulatory compliance by 100 percent.

In addition to the above estimates, the PRIA included a "special efforts" alternative modeled after the Department's 1981 Interim Rule requirements for accessible bus and special services. The costs for the "special efforts" alternative were based on the assumption that all recipients would spend amounts equivalent to the full value of the proposed cost caps (7.1 percent of 1981 UMTA federal assistance and 3.0 percent of total transit industry operating costs) in providing services for handicapped persons. In fact, many recipients are likely to be able to provide service in compliance with the criteria for less than the cost caps. The PRIA overstates costs for this reason, as well.

A primary purpose in preparing this Final Regulatory Impact Analysis is to replace the PRIA cost estimates with estimates tha reflect potential compliance costs, both nationally and locally, based on actual transit authority experiences, and to assess the actual cost burden which recipients will likely encounter in complying with the final rule.

E. Derivation of the Proposed Cost Caps

The 7.1 and 3.0 percent cost caps proposed in the NPRM were developed through a DOT case study analysis of the cost to provide a door-to-door user-side subsidy taxi program in Milwaukee, Wisconsin. This program met most of the proposed minimum service criteria, although eligibility for the service was somewhat more restrictive than the eligibility requirement proposed in the NPRM (The eligibility policy in Milwaukee appears to conform to the final rule's requirements, however.) The program cost of the Milwaukee service (as modified to meet the NPRM service criteria) was equivalent to 3.0 percent of the Milwaukee County Transit Authority's average total operating budget and 7.1 percent of its average federal assistance in FY 1981 fiscal year and the two preceding years.

The 7.1 and 3.0 percent cost caps derived from the Milwaukee case were found to yield virtually identical amounts when applied to total nationwide transit operating expenses and total federal grant assistance in FY 1981. Therefore, it was assumed that other transit systems should be able to operate user-side subsidy service at similar cost, which would meet both cost caps. The NPRM recognized Milwaukee's expenditures were not mandated by federal law or regulation. It seems reasonable to conclude that a transit agency does not choose to burden itself unduly. Consequently, limiting required expenditures to this level was assumed to prevent undue burdens. For purpose of seeking comment on the NPRM, the Department extrapolated Milwaukee's experience to a nationwide standard in full awareness that a single city was unlikely to be representative of the nation generally. For purposes of seeking comment, however, it was reasonable to use the 7.1 and 3.0 levels as plausible levels of expenditure that would not involve undue burden on recipients.

F. Docket Comments

The Department published the NPRM in September 1983 and the period for comments to the docket closed December 7, 1983. The Departmental received about 650 comments. The proposed minimum service criteria and cost caps were the subject of a substantial number of comments by handicapped persons and transit authorities as well as state and local transportation and social service agencies, MPOs, and other interested parties. Handicapped persons and organizations representing them generally commented that the NPRM did not go far enough in specifying service criteria and that the criteria should not be subject to a cost cap. Most transit authorities argued the reverse, requesting flexibility at the local level to set appropriate service criteria, and recommending a lower limit on expenditures. Other parties' comments tended to be evenly split in support of handicapped and transit authority positions. The comments are described in greater detail in the preamble to the final rule.

II. DEPARTMENTAL RESPONSE-FINAL REGULATORY IMPACT ANALYSIS

The docket comments raised numerous issues concerning the service criteria and the compliance costs projected in the Preliminary Regulatory Analysis for the various service approaches to transit service for handicapped persons. The Department believed it needed more information to make decisions on the final rule, in view of these comments. In order to update the cost projections of the PRIA and to address the issues raised in the docket submissions, the Department conducted additional research to study the potential regulatory costs of various alternatives. To supplement the Milwaukee case study, the Department conducted detailed case studies of various transportation services for handicapped persons in seven cities across the country to

determine if they could meet the service criteria within the 7.1 or 3.0 percent cost levels. In addition, the Department commissioned a consultant's study based on a computer model of 53 special service systems.

At the local level, the model estimates the annual costs of operating specialized services and lift-bus systems meeting the service criteria, and assesses how local cost burdens would vary among urbanized areas of various sizes. At the national level, the model projects the overall nationwide compliance costs of the various service options, in terms of their present value over the next thirty years.

The Preliminary Regulatory Impact Analysis required by Executive Order 12291 to support the NPRM satisfied some of the elements contained in the order. Notably, the preliminary analysis included an assessment of the potential regulatory impacts on transit user groups, public and private transportation providers, bus and other vehicle manufacturers, small businesses, and state and local governments. This material from the preliminary analysis is incorporated as part of this final regulatory impact analysis for purposes of satisfying Executive Order 12291 (see Appendix A).

III. REGULATORY OBJECTIVES

The Department has four main objectives in establishing the new 504 regulation to implement the statutory provisions relating to urban mass transportation for handicapped persons.

They are

A. To comply with the statutes and court decisions governing public transit services for handicapped persons.

B. To ensure that handicapped persons have access to public transportation services on a nondiscriminatory basis, and to improve the availability and quality of the accessible service to this market.

C. To ensure that local communities have sufficient flexibility in providing transportation to handicapped persons so that they can minimize the associated cost and tailor the services to the needs of handicapped persons in their communities.

D. To establish a reasonable level of service and set a predictable limit on the costs which transit authorities would have to incur to comply with the regulations, so as not to require burdensome alterations in recipients' services, or create undue hardships.

IV. THE PROBLEM

Transit systems across the nation have responded to the Department's 1981 interim final rule (IFR) by providing accessible bus systems or specialized transportation services. The IFR required recipients to certify that special efforts were being made in their service areas to provide transportation for handicapped persons. Dissatisfaction with the service provided under the IFR was a primary reason for the passage of section 317(c). The sponsors of the amendment cited a General Accounting Office Study of compliance with the IFR which identified widespread deficiencies in the level of special services being provided to handicapped persons under the regulation. In order to assess the potential impacts of the new regulations on recipients' current service levels, the final regulatory analysis is designed to address four critical questions relating to the impacts of the section 504 requirements:

- To what extent can accessible-bus systems or special services that meet the minimum service and eligibility criteria be provided within either one or both of the proposed cost limits?
- How does the limit on required expenditures relate to actual experience of transit authorities and their cost burden?
- If special service that meets the minimum service criteria cannot be provided at costs within the cost limits, what combination of service criteria could bring the cost in line with the cost limits?
- How would the national costs and benefits of providing accessible bus service compare with the costs and benefits of providing specialized service, and how do these costs compare with the cost limits?

V. PLAN OF THIS REPORT

Chapter II describes the case study selection process, the study objectives and methodological approach, and summarizes the operating and cost characteristics of the seven selected case systems. This chapter also reviews each of the service criteria addressed in the regulation, assesses their individual cost implications in the case study systems, and discusses the key qualitative issues that the Department considered in making final decisions regarding the regulation of service quality and eligibility.

Drawing upon the information developed in Chapter II, Chapter III estimates the level of service and cost for each case study system to meet the service criteria, and compares these costs to the expenditure levels generated by the proposed 7.1 and 3.0 percent

cost limits. This Chapter also identifies the major service variables which appear to influence costs.

Chapter IV presents the results of the model analysis which estimate the compliance costs to transit authorities associated with the various regulatory options. The Chapter also examines modifications in the service criteria that would be needed in order to bring these costs into line with the alternative spending limits. Based on the results of Chapters III and IV, Chapter V compares the projected compliance costs and cost limits in the case study systems to those in the model, and summarizes the cost impacts of the regulations on these systems. This chapter also assesses the impact of recent changes in federal transit spending policies on the proposed 7.1 percent federal assistance cost limit. The Chapter then examines alternative cost limit concepts; it estimates their financial implications for transit authorities and discusses the advantages and disadvantages of alternative approaches to setting a cost limit.

Chapter VI presents an economic analysis which estimates the nationwide compliance costs of meeting the service criteria under alternative service approaches, and compares the cost-effectiveness of the various service options.

CHAPTER II

CASE STUDY ANALYSIS: METHODOLOGICAL APPROACH, PROGRAM CHARACTERISTICS AND COST IMPLICATIONS OF SERVICE CRITERIA

The first section of this Chapter reviews the primary forms of specialized transportation services, and describes the methodological approach used to select and evaluate the seven case study systems. The second section of this Chapter presents the salient operating and cost characteristics of each case system. The third section of this Chapter reviews the service criteria proposals of the NPRM; estimates their individual cost implications in the case study systems; and identifies key issues involved in meeting the service criteria requirements.

I. GENERAL CHARACTERISTICS OF SPECIALIZED TRANSPORTATION SERVICES FOR HANDICAPPED PERSONS

As explained in the Introduction, the Department has undertaken additional case studies of transportation services for handicapped persons to supplement the initial study of user-side subsidy taxi service in Milwaukee contained in the PRIA. The review of candidate systems involved a wide variety of accessible transportation services, which differ significantly in their methods of service delivery. To familiarize the reader with the various forms of special services, the following presents a brief synopsis of the two principal types of service represented in the case systems.

A. Paratransit Service

Over the past decade, transit authorities have become increasingly involved in the initiation of door-to-door paratransit services for elderly and handicapped individuals. Many paratransit systems are operated by transit authorities with their own fleet of vans and/or mini-buses. In some cases, the transit authority will contract out all or a portion of the service to local taxi operators or will coordinate or broker the service through existing for-profit transportation carriers and non-profit social service agencies. Most paratransit systems typically provide demand-responsive dial-a-ride service and many systems also offer subscription service, which entitles users to standing reservations for recurring trips such as work or medical appointments.

Existing paratransit service is often restricted to daytime hours, and rides are grouped to the maximum extent possible. Service provided during peak hour periods also may be restricted to

certain trip purposes. Service may be "area-wide" or "zonal" in nature. "Area-wide" systems generally serve the same service area as the fixed-route system. "Zonal" systems generally subdivide their service area into neighborhood zones and users are limited to trips within their zone of residence. In some instances, transfers are permitted for inter-zonal travel.

To accommodate persons with physical disabilities, paratransit systems usually have a proportion of their service vehicles equipped with wheelchair lifts. The cost-effectiveness of these services varies widely. Service operated by the transit authority with its own fleet of vehicles tends to have the highest cost per passenger.

Systems which subdivide their service area into zones, and provide service only within those zones, realize improved cost-effectiveness. Advance reservation requirements employed by most systems also help to reduce costs by maximizing the opportunity to group rides.

B. User-Side Subsidy Taxi Service

An alternative to publicly operated paratransit service for handicapped persons is for transit authorities to provide them with individual subsidies that enable them to purchase transportation from private carriers at reduced fares. Under this approach, the users, rather than the providers, of transportation are subsidized; thus, the subsidy is referred to as a user-side subsidy. The essential feature of a user-side subsidy is that receipt of the subsidy is tied to use of the provider's service. The subsidizing agency does not spend any money for unused capacity or service.

For most existing programs, the transit agency targets and certifies eligible participants, and brokers and coordinates service delivery with taxicab companies within the service area. In some instances, transit authorities also contract with other types of transportation carriers (such as those specializing in the transport of wheelchair or bed-bound patrons). In a few cases, authorities have contracted with third-party private firms to broker and coordinate service delivery with private carriers.

User-side subsidy programs using commercial taxis or other vehicles generally provide a high level of service on an existing mode at a reduced cost. This method of subsidy generally involves providing eligible users with taxi tickets or vouchers at reduced prices. The taxi companies redeem the vouchers from the transit authority at face value. Users book their trips in the same way as regular taxi patrons and generally receive immediate response

service on all days of the week. Like paratransit services, user-side subsidy programs have many variations in the types of trips they serve; fare schedules and limits on the amount of individual subsidies also vary among existing programs. Special provisions, however, are necessary in user-side subsidy programs to accommodate the handicapped persons who cannot use taxis. User-side subsidy programs can be highly cost-effective for transit systems, since taxi companies usually have the capacity to accommodate the additional trips of handicapped patrons without increasing their vehicle fleet or expanding their service hours.

II. METHODOLOGICAL APPROACH

The Department reviewed the program operating and cost characteristics of approximately 35 accessible transportation services for handicapped persons in operation in 1983, and selected seven programs for detailed case study analysis in Cleveland, Ohio; Pittsburgh, Pennsylvania; Seattle, Washington; Kansas City, Missouri; Akron, Ohio; Newport News/Hampton, Virginia; and Brockton, Massachusetts. The case study systems were selected to represent varied approaches to service for handicapped persons which met most of the NPRM service criteria, and reflected a range of geographic locations and transit vehicle fleet sizes. The objectives of the analysis were (1) to determine whether existing service in these systems could meet all the service criteria at a program cost within one or both of the proposed cost limits, (2) to identify some service trade-offs, and their cost impacts which a system might chose to comply with the service criteria, (3) to determine how the cost (as modified to meet all service criteria) compared with the two proposed cost limits, and (4) if a system could not meet the service criteria for less than the cost limits, to determine the level to which the service or the cost limits would have to be adjusted.

The service characteristics and eligibility requirements for each case system were compared to the service criteria of the NPRM. In most cases, eligibility on the special services was broader than the NPRM requirement, including all elderly persons over a specific age and some handicapped persons who could use fixed-route service. In many cases, service restrictions that would not be permitted by the service criteria were imposed. In order to estimate the service and costs necessary to meet the service and eligibility criteria, several service and cost adjustments were necessary for each case. A detailed description of the case studies including all assumptions and adjustments for each case can be found in Appendix B. The next section summarizes the operating and cost characteristics of the case study systems and describes the cost impacts associated with meeting each service criterion.

III. CASE STUDY SYSTEM OPERATING CHARACTERISTICS

The case systems represent a variety of institutional settings, operating and contractual arrangements, and service levels as summarized in Tables 1 and 2. The service characteristics and program costs of each case study system are summarized below:

Cleveland Community Responsive Transit System (CRT) Cuyahoga County, Ohio (County population 1.5 million, total fleet size serving general public - over 1,000 vehicles)

The Greater Cleveland Regional Transit Authority (GCRTA) operates three separate demand-responsive paratransit services for elderly and handicapped residents of Cuyahoga County. The services are targeted solely at individuals who are unaffiliated with social service agencies.

The eligible user population targeted by the GCRTA for special service is broader than that defined by the federal eligibility requirement. Two of the three services, Community Response Transit (CRT) and Cross-County Medical have liberal eligibility policies including all elderly over age 65, and mobile and immobile handicapped persons. The third service, Extra-Lift, limits eligibility to physically and mentally handicapped persons certified by a doctor as unable to use regular transit.

Both the Medical and Extra-Lift services operate over the same 456 square-mile county area served by the fixed-route system. However, special service trips are limited to medical, work and school purposes. Service is provided on weekdays only between 6:30 a.m. and 5:30 p.m. (compared to fixed-route service which operates seven days per week and 24 hours daily). Patrons of Extra-Lift book trips on a subscription basis and advance reservations are not required. Most medical trips require advance reservations the day before travel.

The CRT system is the most heavily utilized of the three services. The 456 square mile service area is divided into 18 neighborhood zones and users can book trips for all purposes within these zones, but travel is not permitted across zones. CRT service operates on weekdays between 9:00 a.m. to 5:00 p.m. and Sunday from 8:30 a.m. to 2:30 p.m. Advance reservations are required on the day before travel.

The GCRTA operates its own fleet of 70 minibuses (100% lift-equipped). In addition to the capital cost supporting the vehicle fleet, the GCRTA constructed a separate facility to house its paratransit operation. This has resulted in a high capital expense, which represents approximately one-third of Cleveland's total paratransit program cost. Minibus drivers are paid a lower rate than GCRTA union bus drivers and a portion of the CRT service is contracted out to a local taxi operator.

TABLE 1
SYSTEM CHARACTERISTICS OF CASE STUDY ACCESSIBLE TRANSPORTATION SERVICES

System (Fiscal Year)	Type of Service	Eligibility Requirement	Service Area (Miles and Coverage)	E & H Target Population	E & H Total Registration	E & H Registrants as % of Target Pop.	Total Annual Ridership	Trips/Year Per Registrant
leveland CRT (1982)	Demand-responsive paratransit	Elderly over 65, all handi-capped	456 sq. miles Zonal, Area-wide for medical trips only	160,000	12,646	8	364,000	28.8
leveland tra-Lift (1982)	Subscription Service work/school	Certified handicapped	Area-wide 456 sq. miles	N/A	N/A	N/A	20,000	N/A
ittsburgh CCESS 1983)	Demand response paratransit	General Public	727 sq. miles Area-wide	N/A	N/A	N/A	233,620	N/A
ittsburgh	User-side subsidy	Certified handicapped	Area-wide	N/A	5,900	N/A	139,655	23.7
attle 983)	Lift-bus	Disabled	2,128 sq. miles 53% of routes	N/A	N/A	N/A	70,500	N/A
attle SP	User-side subsidy and subsidized van service	Elderly over 65, and all handicapped with low in-come	Area-wide	78,000	10,000	13	100,546	10.1
nsas ty ssouri are A re (1983)	User-side subsidy taxi/van service	Certified handicapped	314 sq. miles Area-wide	58,397 (includes 3,357 handi-capped)	20,000	37	280,739	14.0

TABLE 1 (Cont'd)
SERVICE CHARACTERISTICS OF ACCESSIBLE TRANSPORTATION SERVICES

System (Fiscal Year)	Type of Service	Eligibility Requirement	Service Area (Miles and Coverage)	E & H Target Population	E & H Total Registration	E & H Registrants as % of Target Pop.	Total Annual Ridership	Trips/Year Per Registrant
Akron SCAT (1983)	Demand Response paratransit and 15 % accessible bus service	Elderly over 65,62-64 on limited income and certified handicapped	95.1 sq. miles Area-wide (Akron and neighboring towns	54,000	15,000	28	267,199	17.8
Newport News/ Hampton Handi-Ride (1983)	Demand response brokerage para-transit	Certified handicapped	121.5 sq. miles Area-wide	6,125 (Handi-capped only)	2,500 (Handi-capped only)	41	15,778	6.3
Brockton Dial-A-Bat (1983)	Demand response para-transit	Elderly over 60, certified handicapped, pre-school children	Area-wide (Brockton and neighboring towns)	18,000 4,740 (Handi-capped only)	3,000	17	196,754	65.6

TABLE 2
COST CHARACTERISTICS OF CASE STUDY ACCESSIBLE TRANSPORTATION SERVICES

System	Handicapped Fare or Average User cost	Base Transit Fare	Advance Reservation (Hours)	Average Oper. Cost/ Trip	Cost per Vehicle Hour	Total Annual Program Cost (in Thousands$)	Year of Data*
Cleveland	.25[1]	.85[1]	24	6.47[3]	33.40	3900	1982
Paratransit	.40[2]	1.00[2]		28.00[4]			
Pittsburgh Paratransit	1.29	1.00	24	11.95	10.50	2793	FY 1983
Seattle Metro Lift-bus	.15	.50-.75[1]		12.11[5]		854	1983
User-Side Subsidy/ Rural Van Services	3.23 Contri-bution or Free	.50-.75	24 24	6.46 4.00		254 110	
Kansas City User-Side Subsidy	1.00	.60 .70[6]	24	3.50 7.40[5]	7.30	1079	FY 1983
Akron Paratransit	.25	.50 .80[6]	24	6.45 16.00[5]	25.40	1155	1983
Hampton/N.N Paratransit	.75[7] 1.50[8]	.50 .80[6]	24	5.90	7.20	93	FY 1983
Brockton Paratransit	.50[7] 1.00[8]	.50	24	1.82[7] 4.87[8]	16.80	585	FY 1983

* Data for FY 1983 is based on transit fiscal year beginning July 1982 and ending June 1983
1/ Off-peak fare; 2/ Peak fare; 3/ Zone fare; 4/ Area-wide fare; 5/ Wheelchair trips only; 6/ Express fare; 7/ Subscription trips; 8/ Dial-a-ride shared or exclusive trip.

The Cleveland system, one of the most heavily utilized of its kind in the country, provided 384,000 trips in 1982 at a total program cost of approximately $3.9 million. The 1982 total program cost was below the proposed 7.1 percent cost limit, but exceeded the 3.0 percent cost limit.

Service Criteria Presently Met: The Cleveland system serves a much broader E & H population than required by the rule, and paratransit fares are 60 to 70 percent less than transit fares. The special service serves the same service area as the fixed-route bus system. Other service criteria are not fully met.

Pittsburgh ACCESS Paratransit System, Allegheny County, Pennsylvania (County population 1.5 million, total fleet size serving general public - over 1,000 vehicles)

The Port Authority of Allegheny Country (PAT) provides area-wide, door-to-door, demand-responsive paratransit service through a coordinated brokerage system. The paratransit service is available to the general public, and PAT provides a 88.75 percent user-side subsidy for persons who cannot pass a physical test to negotiate bus steps. Other handicapped subgroups, such as blind and mentally retarded persons, are not eligible for PAT subsidies unless they cannot negotiate bus steps. Under the rule, PAT might have to consider providing user-side subsidies for some of these persons if they are physically unable to use regular bus service.

PAT contracts out the paratransit service to a private broker, ACCESS, which subcontracts service to profit and non-profit carriers operating a fleet of 130 vehicles. ACCESS operates seven days a week from 6 a.m. to midnight, which is equivalent to the days and hours of fixed-route service. The ACCESS system serves a large service area of over 700 square miles, which is comparable to the geographic coverage provided on the fixed-route system. Reservations are required one day in advance for guaranteed service. Two-hour advance reservations are taken subject to available capacity.

ACCESS markets its service to social service agencies whose clients accounted for 34 percent of the 234,000 total ACCESS trips in FY 1983. Approximately 50 percent of the total ACCESS cost is borne by the Port Authority for user-side subsidy payments. The remaining cost is subsidized by social service agencies and a special Pennsylvania State elderly fare program. In FY 1983, user-side subsidy patrons accounted for 60 percent of total ACCESS trips. The fare charge for user-side subsidy patrons averaged $1.29 and could be considered comparable to transit fares which range from $1.00 to $2.65, dependent on the length of the trip. The FY 1983 program cost of $2.8 million, was less than both the 7.1 and 3.0 percent cost limit amounts.

Service Criteria Presently Met: ACCESS appears to meet all service criteria except the eligibility requirement.

SHARE A FARE (SAF) User-side Subsidy Taxi System, Kansas City, Missouri (SMSA population 446,000, total fleet size serving general public - 350 vehicles)

The Kansas City, Missouri, Department of Transportation operates Share A Fare (SAF), a user-side subsidy program providing door-to-door taxi and van services for E & H residents of Kansas City, Missouri. This is the central city in the Kansas City, Missouri/ Kansas City, Kansas, urbanized region which includes seven counties with a 1.3 million population.

Elderly persons over age 65 and some low-income persons are eligible for user-side subsidy service, and physically and mentally handicapped persons must be certified by a doctor as unable to use transit service unless they are affiliated with a social service agency. SAF serves a mix of social service agency and non-agency patrons. The DOT acts as broker coordinating service through seven profit and non-profit providers with a fleet of 475 vehicles. Approximately 10 percent of total vehicles are lift-equipped to accommodate wheelchair users unable to use taxis. The service operates seven days a week from 6 a.m. to 10 p.m., while fixed-route transit operates from roughly 4:00 a.m. to 1:00 a.m. Reservations are required one day in advance, and most trips are shared rides. The average fare charge for user-side subsidy patrons is $1.00, and could be considered comparable to the express taxi transit fare of 70 cents.

The SAF service area of 314 square miles corresponds to the city limits of Kansas City Missouri, and is more than double the size of the fixed-route area served by the Kansas City Area Transit Authority. Medical and work trips are served by SAF throughout the seven-county Kansas City, Missouri-Kansas urbanized region. This coverage far exceeds the fixed-route service area, which covers Kansas City, Missouri, and portions of two counties and some independent townships outside Kansas City, Missouri.

Program eligibility includes elderly and low-income persons who could use regular transit as well as a substantial number of handicapped persons who reside outside the area served by the fixed-route bus system in Kansas City, Missouri. These policies exceed the requirements of the rule. However, the SAF program would not satisfy the federal eligibility requirement since handicapped residents of the fixed-route service area outside of Kansas City, Missouri, are currently ineligible for special service. SAF had 20,000 registrants in FY 1983 and provided 282,000 annual trips, at a total program cost of $1,079,000, which exceeded both the 7.1 and 3.0 percent cost limits.

Service Criteria Presently Met: The Kansas City user-side subsidy program appears to meet all service criteria except hours of operation and the eligibility requirement.

Special Citizens Area Transportation (SCAT), Akron, Ohio
(Estimated population in service area - 660,000, total fleet size serving general public - 118 vehicles)

The Akron METRO Transit Authority provides a mix of door-to-door paratransit service and fixed-route lift-bus service for E & H residents of Akron and three adjoining towns. The SCAT para-transit system serves elderly over age 65, persons age 62 to 64 on limited incomes, and physically and mentally handicapped persons certified by a doctor as unable to use fixed-route bus service. SCAT's eligibility policy exceeds the requirements of the rule. METRO operates SCAT with a combination of 15 vans (over one-half are lift equipped), and contracts with a taxi operator who provides almost one-half of SCAT's service.

SCAT paratransit service operates Monday to Friday from 6:00 a.m. to 6:00 p.m.; on evenings and weekends, METRO operates 16 lift-equipped buses which provide service on 50 percent of its bus routes. This service coverage is equivalent to the days and hours of fixed-route service. SCAT provides both demand-responsive dial-a-ride and subscription service, and 75 percent of taxi trips and 40 percent of van trips are exclusive ride. Reservations are required one day in advance, except for medical emergencies. SCAT provides unrestricted service to handicapped persons, but restricts elderly travel to neighborhood zones. The SCAT fare is 50 percent less than the base transit fare. SCAT has 15,000 registrants, and served 156,000 total E & H trips in FY 1983 at a total program cost of approximately $1.1 million, which exceeded both cost limits.

Service Criteria Presently Met: The Akron combined paratransit/lift-bus system appears to satisfy all of the service criteria and exceeds the eligibility requirement.

HANDI-RIDE Paratransit System, Hampton/Newport News, Virginia
(Service area population 270,000, total fleet size serving general public - 122 vehicles)

The PENTRAN transit authority operates Handi-Ride, a door-to-door, demand-responsive paratransit service for physically and mentally handicapped persons certified by a doctor as unable to use fixed-route service. Over one-half of the users are elderly who qualify on the basis of physical disabilities. Pentran operates Handi-Ride as part of a transportation brokerage program and owns ten paratransit vehicles. Pentran supplements the special service through a taxi operator with 20 vehicles.

Handi-Ride serves the geographic area as the fixed-route bus system, and all trip purposes are served. Handi-Ride operates from 6:00 a.m. to 6:00 p.m., Monday through Saturday; three hours less than fixed-route service. The Handi-Ride fares of 75 cents for shared rides and $1.50 for exclusive rides are 50 percent more than transit fares charged for regular and express bus service. Users must reserve trips a day in advance. In FY 1983, Handi-Ride had 2,625 registrants including escorts, and served 15,778 total trips at a total program cost of $93,000 which was below both of the proposed cost limits.

Service Criteria Currently Met: Handi-Ride appears to meet all service criteria requirements except hours of operation.

DIAL-A-BAT Paratransit System, Brockton, Massachusetts (service area population 130,000, total size fleet serving general public - 66 vehicles)

The Brockton Area Transit Authority operates DIAL-A-BAT, a door-to-door, demand-responsive paratransit service for elderly persons over age 60 and certified physically and mentally handicapped residents of Brockton, and some social service agency clients in two adjacent towns. DIAL-A-BAT also extends eligibility to some handicapped persons who could use fixed-route bus service and to low income pre-school children, which exceeds the eligibility requirements of the rule.

However, DIAL-A-BAT does not fully satisfy the federal eligibility requirement since handicapped residents in two adjacent towns, which are within the transit service area, are currently ineligible for service unless affiliated with participating social service agencies. Under the rule, some of these people would qualify as eligible for some form of accessible service. DIAL-A-BAT is contracted out to a non-profit organization and operated with 26 vans owned by the transit authority. Private taxis provide back-up service as needed. The paratransit service area is significantly larger than the fixed-route area, and 15 percent of total DIAL-A-BAT trips are to out-of-town destinations (primarily medical trips to Boston). The service is available Monday through Friday from 7 a.m. to 6 p.m. or five hours less than the fixed-route system. Saturday and evening service is available by appointment. Neither the fixed-route system nor DIAL-A-BAT operates on Sunday. Most trips are by subscription service and do not require advance reservations. Dial-A-Ride trips must be scheduled one day in advance. Almost all trips are shared ride, and approximately 74% percent of total trips are made by social service agency clients. DIAL-A-BAT subsidizes both agency and non-agency patrons at different subsidy levels. Agencies pay their clients' fares. For non-agency patrons, the fare for subscription service is equivalent to the base transit fare of 50 cents. The Dial-A-Ride fare of $1.00 for exclusive or shared taxi trips could be considererd comparable to the base transit fare. DIAL-A-BAT had 3,000 registrants and provided

2. NPRM Proposal

Section 27.77(c)(1) of the NPRM provided that "The service shall be available throughout the same service area as the recipient's service for the general public." The preamble explained that this meant that a handicapped person on the special service system should be able to get anywhere that a member of the general public could go on the regular mass transit system. The preamble also sought comment on how the final rule should treat service that extended beyond the urbanized area, such as long-distance commuter routes.

3. Issues

Almost all comments to the docket from handicapped groups on this subject agreed that the same geographical service area should be served by both the regular transit service and the special service. In addition, many of these commenters said that service on extended commuter routes should be available to handicapped persons. While a few transit authorities agreed with these positions, most contended that the definition of the service area and the decision about whether to provide service to handicapped persons on extended commuter routes should be left to local decision.

There also was comment on how the service area should be defined. Suggestions included the urbanized area, the area in which population is counted for determining the Section 9 formula funds allocated to a recipient, and the jurisdictions taxed to support the transit authority's operations.

4. Service Impacts

Findings from the case studies illustrate the diversity and complexity of ways of meeting this service area criterion. All of the case study systems provide area-wide coverage over the same service area as the fixed-route bus system, although Cleveland restricts trip purposes in its service area. Two of the systems, Brockton and Kansas City, provide geographic coverage which exceeds the fixed-route coverage. Brockton's DIAL-A-BAT serves special service trips outside the fixed-route service area, primarily to Boston. If Brockton chose to limit its service area to that of the fixed-route bus system, it could potentially reduce total handicapped trips by approximately 25 percent.

In Kansas City, Missouri, the service situation is more complex. The special service area, which corresponds to the city limits of Kansas City proper, is more than double the size of the fixed-route area. In addition, special service is provided for medical and work trips throughout the seven-county region of Kansas City, Missouri/Kansas City, Kansas, which far exceeds the coverage of

197,000 trips in FY 1983. The program cost of $585,000 exceeded both cost limits.

Service Criteria Currently Met: The Brockton paratransit service satisfies all service criteria except days and hours of operation, and the eligibility requirement.

IV. SERVICE CRITERIA: FINANCIAL IMPLICATIONS AND QUALITATIVE ISSUES

This section reviews the NPRM service criteria and eligibility requirements, describes the service and cost impacts in affected case study systems of meeting each service criterion, and discusses issues and options associated with the following service criteria:

- Service Area
- Days and Hours of Service
- Fares
- Response Time
- Trip Purpose
- Waiting Lists
- Eligibility Requirement

A. Service Area Criterion

1. Background

Transit authorities serve a given geographical area. In some cases, the area that they serve is coextensive with the urbanized area; although other transit authorities may not provide service to all parts of the urbanized area. It is not uncommon for transit authorities to provide some service (e.g., commuter express routes) outside the regular service area served by the bus system. The special services provided for handicapped persons may be "area-wide" or "zonal" in nature. In "area-wide" systems, the special service generally covers the same geographic area as the fixed-route service. In "zone" systems, the service is restricted to designated service zones and transfers to fixed-route service are generally necessary for interzonal service. Many existing special services provide "area-wide" coverage that is roughly the same as the fixed route, although most special services do not cover long-distance commuter routes. The productivity and cost of special transportation services are significantly affected by the size of the service area. In general, the larger the service area, the lower the productivity is likely to be because average trip lengths will tend to be longer and the demand densities will tend to be lower.

the fixed-route area. If Kansas City chose to limit geographic coverage on the special service to that of the fixed-route bus system, it could potentially reduce its service area by approximately one-half.

5. Cost Impacts

Both Brockton and Kansas City could reduce present service area coverage and still satisfy this criterion. If Kansas City reduced its special service area to that of the fixed-route system and eliminated special service trips in areas unserved by the fixed-route system, it could potentially reduce its present program cost by an estimated 50 percent (this assumes that the population of eligible users is equally distributed throughout the service area). If Brockton restricted special service coverage for handicapped trips to the fixed-route service area, the Department estimates it could reduce its present program cost by approximately 9 percent. In summary, it appears that all of the case study special service systems serve a geographic area equivalent to or larger than that of the fixed-route system and would not incur additional costs to comply with this service criterion.

6. Options

The main options for specifying this criterion include (1) retaining the requirement that special services serve the same area as the recipient's bus system, (2) allowing recipients to determine the service area through local decision (no requirement), or (3) defining the special service area as the urbanized area. Based on the docket responses, the largest group of commenters favored option (1), while most transit authorities favored option (2) arguing that option (1) would increase costs and result in more comprehensive service coverage for handicapped persons than for the general public. However, neither the docket comments nor the case study results provide any useful information on the economic impacts of meeting this criterion (but see Chapter IV for discussion of model results).

Among the 35 special service systems examined in the course of selecting the case studies, the Department found that many systems restricted their service areas to zones or central urban areas. We do not know how severe the restrictions are in these cities. However, it appears that many of these systems would have to increase their geographic coverage in order to provide service throughout the fixed-route area and meet this criterion.

Since handicapped commenters and transit authorities appeared divided on the service area issue, the option of allowing this requirement to be worked out at the local level could be expected

to create considerable confusion and disagreement. In addition, of course, service to handicapped persons would be more limited than service to the general public.

Option (3), defining the service area as the urbanized area, would be simpler for the general public to understand and refer to on maps than option (1), and it would be easier to certify. However, a comparison of the fixed-route service areas served by the case study systems and their urbanized areas indicated that the fixed-route areas in all cases are smaller than the urbanized areas. Therefore, all case systems would have to extend geographic coverage in order to meet this option.

B. Days and Hours of Service Criterion

1. Background

One of the most frequent problems encountered in existing special service systems is that they operate only during restricted hours. For example, a city's bus service may operate from 6 a.m. to 1 a.m. every day while the special service may operate only from 9 a.m. to 6 p.m. on Monday through Friday. A "same days and hours" service criterion requires the special service to operate at any time the regular transit service operates.

2. NPRM Proposal

Section 27.77(c)(2) of the NPRM requires that "The service shall be available on the same days and during the same hours as the recipient's service for the general public."

3. Issues

A majority of the handicapped commenters on this subject favored the NPRM proposal. A majority of the transit authority commenters opposed it, or thought that localities should have discretion concerning this service characteristic. Other commenters were evenly divided. Proponents of the provision argued that since the special service would be the only accessible service offered to handicapped persons, it was essential that it be available to handicapped persons at all times that public transit is available. Commenters opposing this criterion said that it would not be cost-effective to maintain the availability of special service during certain non-peak hours, such as late at night or on weekends.

4. Cost Impacts

Out of approximately 35 special paratransit systems examined by the Department in the course of selecting case study systems, many were not providing days and hours of service comparable to the

fixed-route service schedules. Only three of the case study systems--Pittsburgh, Akron, and Seattle, met this criterion.

Findings from the other four case studies indicate that the additional costs of meeting this criterion are not substantial. This is because a fairly small proportion of travel occurs in the late evening hours and on weekends when such restrictions tend to apply. The estimated impact of increasing the days and hours of special service to match those of the fixed-route bus system would range from an approximate one to 11 percent increase in the current program costs of the Kansas City and Hampton systems.

5. Service Impact

Comments from some transit agencies contended that because the travel patterns of handicapped users are sufficiently different from those of non-handicapped transit users, strict enforcement of this criterion would lead to inefficient allocation of available resources and possible deterioration of existing services for handicapped persons. A number of UMTA demonstrations involving special transportation services have collected data on project use by time-of-day and day-of-week as part of their evaluation process. Figure 1 compares the temporal travel patterns of transportation handicapped patrons in four UMTA demonstrations, representing a fairly broad range of user eligibility standards and service provisions, to the national average daily ridership of transit users.

Taken together, the four graphs in Figure 1 strongly suggest that the travel patterns of transportation handicapped individuals do not differ significantly from those of non-handicapped travelers, although the peaks for handicapped travel are higher in the morning, midday and afternoon than those of the general public. Most travelers in both groups travel between 5:30 a.m. and 6:30 p.m., and trips after 11 p.m. generally account for less than one percent of total ridership in both groups.

6. Options

There is very little empirical support for the transit agency position that travel patterns of handicapped users are different from the general public, and that strict enforcement of this criterion would lead to inefficient allocation of resources. Since the peaks for handicapped travel are higher throughout the day than the transit peaks of the general public, a trade-off in service might involve restrictions on handicapped service at night and on weekends. Since most transit authorities provide only limited service during these periods and restrict trips of the general public to a core area, a trade-off similarly limiting special service could help reduce costs below the limit on required expenditures.

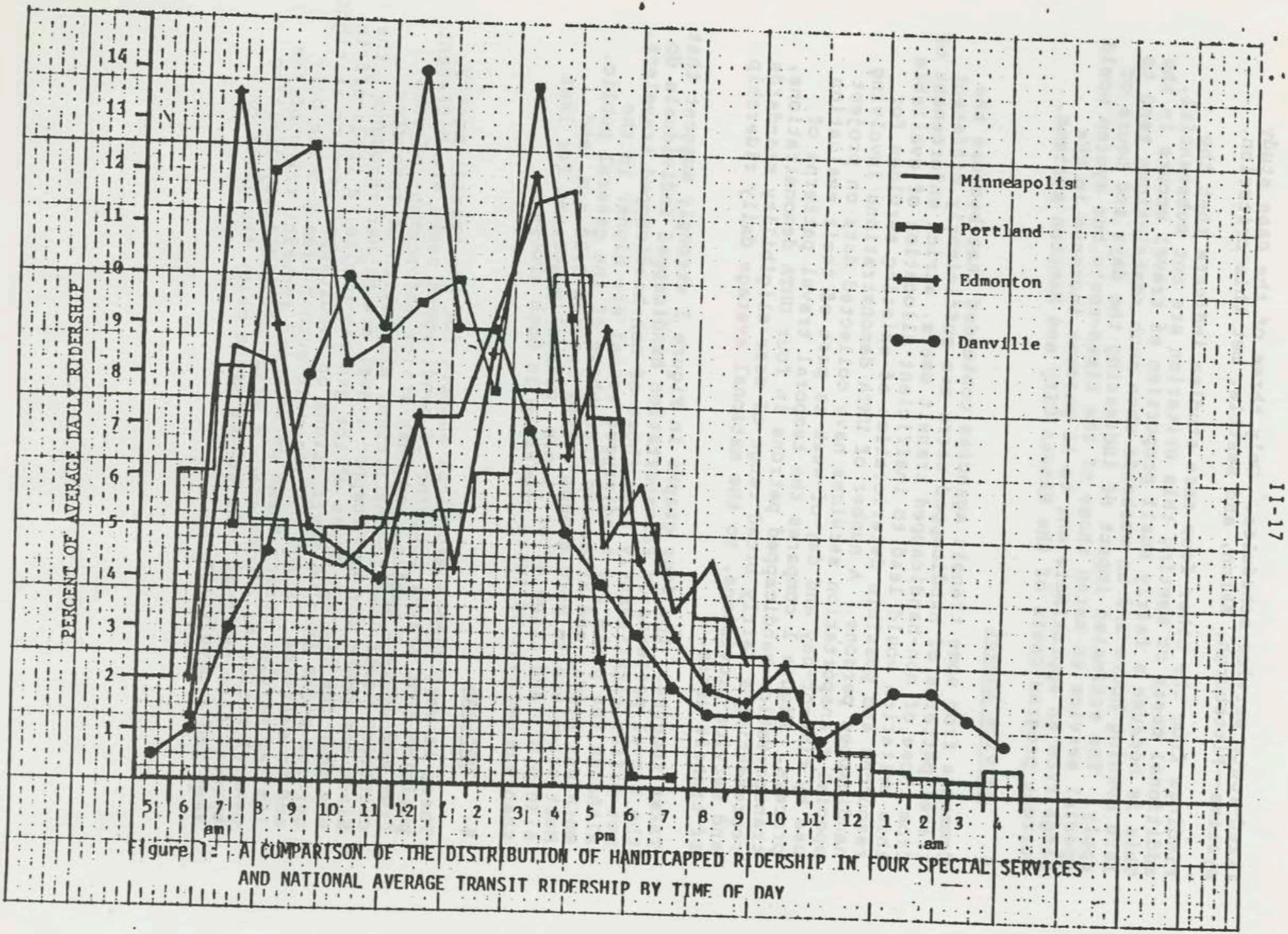

Figure 1: A COMPARISON OF THE DISTRIBUTION OF HANDICAPPED RIDERSHIP IN FOUR SPECIAL SERVICES AND NATIONAL AVERAGE TRANSIT RIDERSHIP BY TIME OF DAY

C. Fare Criterion

1. Background

The NPRM required that special service fares should be comparable, although not necessarily identical, to normal transit fares and that any variance in fare should be relatively small and justifiable based on differences in service levels and the cost of the types of service provided. Because special service systems provide more individual service than regular mass transit with fewer economies of scale, it generally costs more to transport an individual on special services than on regular mass transit. At the same time, the users of special service are often low- or middle-income individuals, who are unlikely to use a service that is priced too expensively. Consequently, there are usually substantial pressures on public transit providers to keep the fares for their special services low. The result is that fare box revenues often account for a lower percentage of the cost for most publicly oriented special services than for regular mass transit. Nevertheless, special service fares are often higher than fares for regular transit service for trips of similar length. This is particularly true when taxis or other for-profit private sector providers are used as the means of providing special services, even when the private service is subsidized.

2. NPRM Proposal

The fare for a handicapped person on the special service should be comparable to those for regular mass transit.

3. Issues

A large majority of the handicapped comments on this issue favored either a comparable fare requirement or a more stringent and well-defined limit on special service fares. A few transit authorities and several other commenters also favored this position. Most transit authorities said that fare decisions should be left to local option. A substantial number of commenters also expressed confusion over the meaning of "comparable" fares and asked that the term be clarified. There were a variety of suggestions of what more definite requirements might be substituted, including a requirement that fares be no higher than regular transit fares; that fares could not be more than 15%, or 50% or 100% higher; and that recipients be permitted to recover the same percentage of operating costs from the fare box on special services as on regular mass transit.

4. Comparison of Fare Levels in Case Study Systems

Results from the case study systems indicate substantial variability in fare levels and widely divergent fare structures

for both paratransit and regular bus services (see Table 3). In terms of fare levels, two of the seven systems--Cleveland and Akron--charge substantially lower fares for handicapped transportation than those charged for regular bus service. The Cleveland paratransit service, which was free to users until 1982, charges 25¢ per off-peak neighborhood trip and 40¢ for area-wide, peak-hour service. These fares are 60 to 70 percent less than those paid by the general public for peak and off-peak transit service. Akron's paratransit fare of 25¢, which is 50 to 70 percent below those charged for regular and express bus service, entitles handicapped users to door-to-door exclusive taxi or shared ride trips throughout the entire service area.

For the remainder of case study systems, fares charged on the special services are generally higher than those charged for regular bus service. Among the case study systems, the highest paratransit fares are charged by Hampton/Newport News' Handi-Ride and Brockton's Dial-A-Bat systems. Handi-Ride's fares are 50 percent more than those charged for fixed-route bus service. However, Hampton's fares could be judged "comparable" depending on the types of services compared. For example, the Handi-Ride fare of 75¢ for door-to-door shared ride taxi or van service could be considered of greater value than the 50¢ base fare for regular bus service. Similarly, Handi-Ride's door-to-door exclusive ride taxi service priced at $1.50, or 50 percent more than the express transit fare, could be judged superior in quality to an express bus trip. The Brockton Dial-A-Bat system charges a 50¢ fare for group rides on the subscription service, which is equivalent to the base transit fare. Brockton's dial-a-ride fare of $1.00 is double the base fare. However, the dial-a-ride fare could be considered "comparable" to the transit fare, since dial-a-ride provides door-to-door exclusive or shared taxi trips which could be judged superior in quality to regular bus trips.

Some comments suggested that systems like Hampton and Brockton which charge higher special service fares are providing superior service, e.g., door-to-door convenience, no outdoor waiting times, increased safety from street crimes, compared to what the average bus rider receives on transit, and that differences in the two types of service are sufficient to justify the fare differentials. Other comments said, however, that other special service features (such as 24-hour advance reservations) pose inconvenience and hardship for handicapped persons, and thus, could offset to some extent this justification for higher fares. It is difficult to make exact comparisons between regular transit service with bus stops every half hour and door-to-door special service requiring up to 24-hour response times. However, regular bus service may require one or two transfers for users to reach destinations in a large service area. In comparison, the rule requires special services to provide handicapped users with door-to-door delivery to all destinations in the service area, which will result in reduced travel times and better geographic coverage than the

TABLE 3
FARE STRUCTURES IN CASE STUDY SYSTEMS
(In 1983 dollars unless otherwise specified)

System	Average Paratransit Fare	Average Transit Fare	Paratransit Fare as % of Transit Fare
Cleveland CRT (1982)	.25[1]/ .40[2]/	.85[1]/ 1.00[2]/	29 40
Pittsburgh ACCESS (FY 1983)	1.29	1.00	129
Kansas City Share A Fare (FY 1983)	1.00	.60/.70[3]/	167/143
Akron SCAT	.25	.50/.80[3]/	50/31
Hampton/N.N. Handi-Ride (FY 1983)	.75/1.50[4]/	.50/1.00[3]/	150/150
Brockton Dial-A-Bat (FY 1983)	.50/1.00[4]/	.50	100/200
Milwaukee	1.50	.85	176

1/ Off-peak fare
2/ Peak fare
3/ Base fare/express transit fare
4/ Subscription fare/dial-a-ride fare

general public receives on regular transit. Therefore, on balance, it appears that superior features such as convenience, flexibility, comfort, and timeliness justify reasonably higher fares on specialized transportation services.

5. Cost Impacts of Fare Requirements

No cost impacts were estimated for the case system which were assumed to be charging "comparable" fares up to two times the level of regular bus fares based on differences in service quality. (Note: Comparability, in most instances, was assumed on the basis of comparing special services fares for group rides to basic adult bus fares, and comparing fares for exclusive or shared ride taxi service to express bus fares.)

However, if the case study systems had to consider adjusting their special service fares downward to a level equivalent to, or slightly higher than transit fares, the impact on current costs would be substantial. For the Brockton DIAL-A-BAT paratransit system, the estimated impact of reducing the special service fare for existing handicapped users to a level equal to the base transit fare would have the following effects: (1) total revenue on the special service would be reduced by approximately 70 percent, (2) the cost recovery ratio of 52 percent would drop to about 15 percent. This would increase Brockton's net program cost supporting handicapped patrons by approximately 75 percent.

If the remainder of the case study systems reduced their special service fares for handicapped users to levels equivalent to base transit fares, it is estimated that they would forego 40-60 percent of current revenue, and their net program costs would increase by 13 to 17 percent. Although we have no experience to quantify the impact of fare reductions on gross operating costs, it is probable that lower fares would increase total trips, and thus some increase in gross costs could be expected as well.

6. Summary of Findings

The case study analysis indicates that (1) there are substantial differences between special service and regular transit fares from city to city; (2) there is considerable variability in the fare differentials, e.g., in two cities, the special service fares are only 30-40 percent of regular transit fares, while for the other five cities the special service fares are higher, reaching a level of two times the transit fares; (3) the fare differentials reflect, in the majority of instances, substantial variations in the level and quality of services being offered; and (4) the impact of charging special service fares equivalent to transit fares would increase both the gross and net operating costs of special services.

7. Options

In establishing a fare criterion, the Department's main options were (1) keeping the general "comparability" standard; (2) establishing a maximum multiple of the bus fare for a similar distance or similar time of day; (3) requiring that the special service fare be no higher than the regular bus fare; (4) local option (no requirement).

Option (1) would retain the comparability standard which UMTA has used with respect to special services since 1976. The concept has never been precisely defined, but suggests that something other than identical fares are permitted. The preamble of the NPRM explained that the variance between the transit and special service fares should be relatively small, and be justifiable in terms of actual differences between the two types of services provided.

Based on the docket responses, most handicapped commenters favored this option. Also, this long-established standard is familiar to transit operators and provides some general guidance to recipients which might help forestall disproportionately high fare differentials without involving an arbitrary arithmetical formula.

Retaining this standard would, in all likelihood, mean that the Department would have to certify comparability on a case-by-case basis to insure acceptable levels of fare differentials.

Option (2) would establish a fare criterion based on specification of a maximum requirement for determining "comparable" fare levels. For example, a maximum requirement might permit a recipient to set the fare for typical paratransit service, i.e., group rides in vans or minibuses, at one and one-half times the level of the basic adult bus fare. The maximum fare for an exclusive or shared ride by taxi or other paratransit vehicle might be set at no more than two times the express bus fare or three times the basic adult bus fare, which represents the maximum levels charged in the case study paratransit systems. For accessible fixed-route bus service, the fare for a lift-bus patron should not exceed the basic adult bus fare.

This alternative is likely to be too difficult to apply reasonably under the wide variety of local situations to which the rule must apply. It also could result in handicapped persons paying disproportionately high fares for special services in some localities, and it would substantially increase the Department's administrative burden since fares would have to be certified on a case-by-case basis.

Option (3) would require that the special service fare be no higher than the regular transit fare. This approach is simple to understand and administer and avoids problems involved in the

other options. However, this option would be objectionable to many transit operators as it would impair their ability to recover costs of special services.

The problem with requiring equivalent fares is that it does not account for superior features of paratransit, e.g., door-to-door convenience and broader service coverage than the general public receives on regular transit, no outdoor wait times, increased safety from street crimes, and reduced travel times. For example, an UMTA evaluation of alternative transportation services for E & H in Dade County, Florida and Madison, Wisconsin, estimated that the average travel time on an accessible bus system would be over twice as long as the time required for trips on the existing door-to-door special service. Recipients should be permitted to use such factors to justify reasonably higher fares on special services as comparable.

Option (4)--local decision in establishing fares for special services--was favored by a majority of transit systems. Allowing the fare requirement to be worked out at the local level could be expected to create considerable confusion and disagreement about appropriate fare levels, and could give rise to potential court challenges or administrative rulings by the Department to settle the issue. More importantly, there would be no check on prohibitively high fares which have been charged by some paratransit systems for trips not subsidized by social service organizations.

D. Response Time Criterion

1. Background

This service criterion addresses the question of how much time should elapse between the user's phone call to schedule special service and the time the vehicle arrives. Existing specialized services vary widely in terms of the time a passenger must wait to be picked up after making a phone call for service. Spur-of-the-moment decisions to shop or to visit friends become impossible, if requests must be made far in advance. While some surveys indicate that about 80 percent of handicapped persons find a 24-hour advance reservation to be satisfactory (because it is convenient to plan many trips ahead of time such as going to work, to school, or to the doctor), surveys also suggest that more use would be made of special transportation if short-notice services were available as well.[1]

2. NPRM Proposal

Response time must be limited to a reasonable time.

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[1] U.S. Department of Transportation, The Lift: Special Needs Transportation in Portland, Oregon, June 1978, pp. 142-144.

3. Issues

All handicapped commenters on the NPRM who addressed this issue favored a regulatory maximum response time requirement. A substantial majority of transit industry commenters favored local option or no regulatory stipulation of a maximum response time. Other commenters were fairly evenly divided on the question. Twenty-four hours was the most frequently mentioned time for a regulatory maximum response time; some commenters said that the maximum time should be no less than 24 hours, while others said that the period should be no more than 24 hours.

4. Service Impacts

Response times vary widely among existing special services which require from 2 hours up to 48-hour bookings in advance of scheduled trip times. However, many systems also allow patrons to book their trips up to seven days in advance, and honor standing reservations for recurring trips such as for work or medical appointments. These practices limit the amount of capacity and the time slots available to those users who are required to call for service a few hours to a day ahead. Transit systems justify the need for advance reservations to allow them to develop the most efficient vehicle tours and constrain their cost, and to schedule lift-equipped vehicles in the most effective way to accommodate more wheelchair patrons. Most of the special services examined, and all of the case study systems, require users to book their trips up to 24 hours in advance for guaranteed reservations. One exception is Pittsburgh's ACCESS system which provides service on a two-hour advance notice basis, if capacity is available. However, because of this limitation, same day service on ACCESS accounts for only about 5 percent of the reservation requests.

In the case study systems, the policy of 24-hour advance reservations is misleading, since in most instances users may book their trips up to 4:00 or 5:00 p.m. for service on the following day. This practice could be interpreted more appropriately as a prior day notice requirement, with a maximum waiting time of 24 hours. The most severe impact on waiting time occurs in systems currently operating service on weekdays only when users must book Monday trips on the preceding Friday. However, this impact would be diminished in most systems if special service hours were expanded to include weekend coverage to comply with the regulations.

A point frequently overlooked in the response time issue is that many special services operate around their formal policy by satisfying individual service requests on an informal basis. This actually results in more responsive service than the reservation requirement suggests. For example, several of the case study

systems with advance notice requirements stated that they provide some immediate response service, although they preferred to have their formal policy stated as 24-hour response time.

Practically all of the case systems indicated that they offer immediate response to medical emergencies of a non-life-threatening nature. At least one system provides, and fully subsidizes, trips to nutrition sites when social service agencies run short of funds. In discussions with local community handicapped groups in two case study cities, the special service providers were praised for responding immediately to the special transportation needs of individual hardship cases. Also, it was found that many systems will waive both their eligibility and reservation requirements to quickly process trips for temporarily disabled persons. Most case study systems also appear flexible in trying to accommodate the travel needs of out-of-town users into their schedules, provided that these users can demonstrate some proof of entitlement to service in their hometowns.

5. Cost Impacts of Eliminating Advance Response Times Requirement

Advance reservations represent an effective way for providers to stretch their resources to cover an excess of demand over capacity. If special services have to provide shorter response times, those systems operating their own vehicle fleets would, in all likelihood, have to add capacity at increased costs.

Estimates from various case study systems of the cost impact of requiring them to serve trips on an immediate response basis, rather than permitting response times within 24 hours, ranged from a 33 to 50 percent increase in current program costs. It also is likely, although not easily quantifiable, that immediate response service would induce additional demand because a whole new set of trips (e.g., spontaneous shopping) would now be accommodated.

6. Options

The options for specifying this criterion include (1) allowing recipients to impose a reasonable response time requirement which would be determined through the local participation process, (2) stating a regulatory maximum waiting period which could be 24 hours or less, or (3) no regulatory requirement. Based on the docket responses, most handicapped commenters favored option (2) a maximum advance notice requirement, (24 hours was the most frequently specified time) while a majority of transit systems favored option (1) local decision or option (3) no regulatory requirement.

Since the commenters appear equally divided on this issue, the option of allowing a "reasonable" time requirement to be worked out at the local level could be expected to create considerable

confusion, and give rise to potential court challenges or administrative rulings by the Department to settle the issue of what is a "reasonable" wait time. The option of specifying no regulatory requirement could be expected to produce similar impacts, as well as to permit unreasonably long response times, in some instances.

A twenty-four hour response time requirement appears most common among transit authorities with existing paratransit systems. This suggests that stating a regulatory maximum waiting period at 24 hours would not be unduly burdensome or costly to transit authorities, which have indicated that such notice allows ample time to group rides and reduce costs. Also, it should be acceptable to handicapped commenters who most frequently mentioned 24 hours as the preferred maximum response time.

E. Trip Purpose Criterion

1. Background

Many existing special services serve handicapped persons only for work, school, medical and shopping trips, and not for recreational or special activities. Unlike eligibility restrictions or waiting lists, which limit service by restricting who may travel, trip purpose-based restrictions limit the kinds of trips that eligible users may take. Alternatively, a system of priorities may be used, such that all demands for medical or work trips is met first, then shopping trips, then trips for social or recreational purposes. Sometimes demand for service in the first or second priority category is such that there is little or no capacity remaining for other trips.

2. NPRM Proposal

Use of the service shall not be restricted by priorities or conditions related to trip purpose.

3. Issues

A large majority of handicapped persons commenting on this subject favored the NPRM's proposal, although some handicapped commenters contended that subscription service (which entitles users to standing reservations for recurring trips such as to work) represents a form of trip prioritization and should be eliminated. A large majority of transit authorities who addressed the issue opposed the NPRM proposal or said it should be a matter for local decision.

Transit authorities argued that such a criterion would force them to increase capacity and cost. In addition, they said this criterion could disrupt existing programs (e.g., subscription service for work trips, regular runs from housing units for elderly or

handicapped persons to medical facilities). Moreover, they said, if persons could demand service for any purpose at any time, on a first-come, first-served basis, then a transit operator might have to provide a trip for a relatively unimportant purpose (e.g., to go to a movie) before, or instead of, providing a trip for a relatively important purpose (e.g., to go to work).

The commenters favoring the provision supported it on the grounds of equality of access to public transportation. They argued that persons who are able to use the regular mass transit system are able to use it at any time for any purpose. Persons who cannot use that system, by reason of handicap, should be able to use the substitute service provided for them at any time for any purpose. Handicapped commenters also objected to what they viewed as the paternalistic notion of transit providers deciding for them which trips were more important than others.

4. Service Impacts

Among the case study systems, all but one satisfies existing demand for special services without imposing restrictions or prioritizations on trip purposes. The Cleveland paratransit system currently limits area-wide service to medical, work, and school trips, although all trip purposes are served within neighborhood zones. However, under the restructured area-wide service with which Cleveland proposes to satisfy this criterion, all trip purposes would be served on an area-wide basis.

While most of the case study systems do not have formal policies for restricting or prioritizing trip purposes, a majority of these systems offer subscription service for trips to work, school, and regular runs for social service agencies to medical facilities or other pre-planned group activities. Subscription service, which entitles users to standing reservations for recurring trips, was considered by some handicapped commenters to be a form of trip prioritization, since the service is typically made available for recurring trips of a certain kind (e.g., work trips).

Most of the case study systems provide a mix of demand-response dial-a-ride and subscription service and are able to accommodate all trip requests within available capacity without prioritizing trips. Systems like Brockton's DIAL-A-BAT, which provide coordinated paratransit service for social service agencies tend to have the highest rates of subscription trips. In Brockton, approximately 60 percent of total trips are by subscription. Virtually all of these trips are made by agency-affiliated clients traveling together in groups of six or more, which substantially reduces the cost per trip. If Brockton had to eliminate subscription service (as some handicapped commenters proposed), the impact on its program could be interpreted as unduly burdensome and disruptive of existing operations.

Although none of the case systems set trip priorities, some indicated that they have emergency plans for establishing trip priorities when all trip purposes cannot be worked into available time slots. In general, these systems would allocate capacity during peak hours for medical, and other essential trip purposes, first, and patrons requesting discretionary trips, e.g., shopping or recreation, would be asked to shift their trips to available time slots during off-peak periods.

5. Cost Impacts

Findings from the case study analysis may be insufficient to address the cost impacts of removing trip purpose restrictions, since all of the case systems appear to be able to accommodate the demands of existing users without restricting or prioritizing trip purposes. The Cleveland CRT, which is the only case system employing trip purpose restrictions on handicapped travel, estimates it could restructure the special service to serve all trip purposes and destinations at an increased operating cost of $600,000. This would increase Clevelansd's current total program cost by approximately 15 percent.

A majority of the 35 specialized transportation services examined in the process of selecting case study systems employ some form of trip restrictions or prioritize trips during peak periods. These systems would incur increased costs if they had to remove such restrictions and provide additional capacity to meet the demand for all types of trips during peak periods. In particular, if subscription service were to be eliminated, as some handicapped commenters requested, the cost impact would be substantial because of the greater cost-effectiveness achieved on subscription versus demand-responsive service.

We analyzed the impacts in the Brockton paratransit system of eliminating subscription service, which accounts for approximately 60 percent of total trips. The subscription component of Brockton's service has an average total cost per handicapped trip of $2.30 compared to $5.20 for the demand-response dial-a-ride component. In 1983, estimated handicapped subscription trips totaled 41,046 at $2.30 average cost per trip. The additional cost to Brockton to shift 41,046 handicapped subscription trips to dial-a-ride would be at least $2.90 per trip, or about $120,000. This would increase Brockton's current total program cost by approximately 20 percent. This is a conservative estimate because it does not include increases in the cost per trip associated with the provision of additional capacity and additional staff to schedule and dispatch trip requests. If Brockton shifted all handicapped subscription trips to exclusive rides, it probably would have to significantly increase current capacity and employ new labor which might double the current program costs.

6. Options

In establishing a criterion on this subject, the Department's main options are (1) retain the prohibition on trip purpose restrictions or priorities or (2) no requirement, which would leave the decision as to how best to allocate demand to localities.

Option (1) has the advantage of prohibiting transit operator practices which severely limit the ways in which handicapped persons use public transportation. Based on the docket responses, most handicapped commenters cited such practices as particularly offensive, and favored retaining this criterion on the ground of equality of access to public transportation.

Most transit authorities opposed option (1) arguing that it would increase capacity and costs, and disrupt useful existing programs, e.g., subscription service for work and other recurring trip purposes. However, none of the comments attempted to quantify the costs of this criterion. Results from the case studies indicate that Cleveland would have to increase its current paratransit costs by 15 percent in order to meet this criterion. It appears that many transit systems have some kind of restrictions or priorities on service. We do not know how severe the restrictions are in these systems, but it seems probable that many recipients would have to increase costs, and possibly capacity, to meet this criterion if they could do so without exceeding the cost limit.

If not, then recipients would be able to make trade-offs in trip purpose restrictions or priorities. For example, if demand exceeds capacity in peak-periods, a recipient might allocate capacity for essential trips first, and shift discretionary trips to available time slots in off-peak periods.

The issue of whether subscription service is permissable under this criterion is of prime concern to the transit industry. Findings from the case studies and other UMTA studies indicate that subscription service is one of the most cost-effective forms of special service, and that allocating demand in this way is clearly advantageous in promoting the most efficient use of existing resources.

Furthermore, while some handicapped commenters cited the disadvantage of subscription service as a form of trip prioritization, other commenters said that subscription service is advantageous to many handicapped persons since it helps avoid problems for workers, students and others who are dependent on the service as their only means of getting to jobs, schools and medical appointments. Also, it is important to note that subscription service is potentially available to everyone who develops a need

for recurring trips. Handicapped persons who oppose such service now may find it advantageous in the future if they develop such needs.

Option (2) would leave the decision on restricting or prioritizing trips to recipients with the likely result that handicapped persons in some cities would be denied service for certain types of trips which handicapped in other cities could make. Moreover, this option would result in a lower quality of service for handicapped users compared to users of regular mass transit systems who are able to use the service at any time for any trip purpose. While the cost savings from operating restricted versus unrestricted systems are likely to be substantial, this option should be rejected on the ground that it will lead to inequities in the type and amount of service received by handicapped persons.

F. Waiting List

1. Background

Some special service systems restrict use by requiring eligible persons to register and then "wait listing" some of the eligible individuals. For example, suppose there are 5000 eligible individuals and the transit authority's vehicles can provide service to only 4000. The transit authority could designate 4000 individuals as active users (e.g., by a lottery or on a first-come, first-served basis) and place the other 1000 on a waiting list. Persons on the waiting list could gain entry to the active user list as active users ceased to need the service, for whatever reason.

2. NPRM Proposal

Waiting lists of persons eligible to use the service cannot be established. All eligible users wishing to use the special systems must be permitted to do so.

3. Issues

A majority of all comments on this subject favored including the "no waiting lists" criterion. This included, not only most handicapped commenters, but also some transit authorities and other state and local agencies. A narrow majority of transit authorities commenting on this subject, plus a few handicapped commenters and some other state and local agencies, opposed including this criterion. They argued that this question should be decided locally.

Some of these commenters said that if providers could not limit demand through waiting lists, then the quality and timeliness of service for the larger pool of users would suffer.

4. Service Impacts

Very little data are available on the actual size of waiting lists in special services, and there is little information on the number of systems maintaining such lists.

Among the case study systems, only the Cleveland system reported a waiting list. Approximately 200 persons were wait listed for its Extra-Lift service, which provides area-wide work and school trips for certified handicapped persons unable to use regular transit. However, a recent telephone survey conducted by the transit authority revealed that only about 20 percent of the persons wait listed for Extra-Lift were actually ready to use the service when offered trips on Extra-Lift.

5. Cost Impacts

If Cleveland provided Extra-Lift service to 20 percent of wait listed applicants, or 40 persons, and if these persons are assumed to use wheelchairs and to make 0.07 trips per day[2] on 365 days per year, this would generate approximately 1,022 new trips on Extra-Lift. The GCRTA estimated a $28.00 cost per trip for Extra-Lift in 1983. Therefore, 1,022 new trips at $28.00 per trip would increase Cleveland's program cost by approximately $29,000, which is less than one percent of its total program expense.

6. Options

In establishing a criterion on this subject, the Department's main options are (1) retaining the waiting list prohibition or (2) no requirement, which would leave the wait list issue to local option.

Results from the case studies indicated that only one system has a waiting list and the cost impacts of eliminating this list would be negligible.

From the impressions gained in the Department's studies, it appears that most special service systems prefer to limit demand by restricting or prioritizing trip purposes rather than restricting participation through waiting lists.

Based on the docket comments and the case study findings, it appears that waiting lists are not a subject of major concern in this rulemaking. Since the eligibility and "provision of service"

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[2] This is the average demand rate per day per severely disabled user estimated by the NCHRP program. Cost-Effectiveness of Transportation Services for Handicapped Persons, National Cooperative Research Program, NCHRP Reports 261 and 262, pages 16-17.

requirements make it clear that recipients must provide service to all eligible handicapped persons, this criterion may not be needed.

G. Eligibility Requirement

1. Background

Although an estimated 29.3 million people in urbanized areas are elderly or handicapped, a smaller number--7.4 million people--are estimated to be "transportation handicapped"; that is, handicapped to some degree in the use of public transportation.[3] Moreover, of the 7.4 million transportation handicapped, only 1.4 million are "severely disabled" in the sense that they are actually unable to use buses and trains; the remaining 6 million can use transit, though with more difficulty than non-handicapped persons.

Among the 1.4 million "severely disabled" population, about 20 percent use a wheelchair. The remainder include blind or deaf persons, those who use mechanical aids, or have other problems which prohibit them from, for example, negotiating steps, stooping, kneeling, waiting, or standing.[4] Based on the available evidence, many special service providers extend eligibility beyond wheelchair users to all "severely disabled" or to all "transportation handicapped" persons; others extend eligibility to able-bodied persons as well. Clearly, the broader the definition of eligible riders, the more capacity a provider needs to provide and the higher a provider's costs will be. Consequently, while providers have an incentive to narrow eligibility for the special service, most have not done so, perhaps to avoid political problems and legal challenges. Additionally, there is some empirical evidence that trip rates are higher among the less severely disabled, independent of their access to transportation. Thus, as eligibility is broadened, there may well be more people and higher trip rates per person.

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[3] Summary Report of Data from National Survey of Handicapped People, U.S. Department of Transportation, June 1978.

[4] The survey did not include information on the incidences of mental retardation problems among the "severely disabled" group. However, as discussed later in this section, other national surveys have found a high prevalence of severe physical disabilities among mentally retarded persons. Thus, it appears that there is substantial overlap of severe physical and mental dysfunctions among the "severely disabled" group identified by the Department.

2. NPRM Proposal

Recipients of federal transit aid are required to regard as eligible for special service all handicapped and elderly persons who, because of their handicap or age, are unable to use the recipient's service for the general public.

3. Issues

From interpretations gained from the case study systems, and from the comments received on the docket, the impression which emerges is one of considerable confusion regarding who is eligible for special services. The controversy over what the Department might do to clarify the eligibility requirement in the final rule has generally focused on the following issues discussed below: (1) the definition of who is eligible; (2) the appropriateness of requiring special service for persons without identifiable mobility handicaps; (3) the costs of servicing various markets of eligible users; and (4) the appropriateness of using certification procedures or physical tests to identify eligible users entitled to special service provision.

(a) Definition of Eligible Population

Based on the docket responses, handicapped persons generally favored the NPRM proposal, although some wanted to extend eligibility to all elderly and handicapped persons. Transit authorities said either that eligibility should be restricted (e.g., to persons with mobility handicaps) or that transit authorities should have the discretion to restrict eligibility, arguing that they would otherwise have to expand capacity and expenditures substantially to serve a larger number of people with special service than with an accessible bus system. The transit industry position is a valid one, i.e., the NPRM proposal would require recipients' special services to serve a potentially large number of mentally retarded persons and others who presumably could not use the recipients' bus system even if it were fully accessible. By requiring recipients to serve a larger eligible population with special service than they would serve with accessible buses, the NPRM provision would, in all likelihood, make special service more expensive and, hence, less attractive. This would have the effect of "tilting" the rule, encouraging recipients to choose accessible bus systems rather than special services.

In order to remedy this problem and give localities a more even-handed choice among service alternatives, the Department has decided to modify the eligibility requirement in the final rule to provide that only those persons who are physically unable to use the recipient's bus system for the general public must be eligible to use the recipient's special service system. This change in the

regulations will produce substantial impacts on the various eligible user groups currently served on specialized transportation services as described below.

(1) Treatment of Non-Disabled Elderly Persons

Many transit authorities presently provide specialized transportation service to non-disabled elderly persons, who qualify on the basis of age alone, and they regard DOT's previous rules on accessible service as encouraging this practice. However, the Department has taken the position that being elderly (i.e., over a certain age) does not, by itself, confer eligibility for the special service. The key consideration is whether or not an elderly person is physically incapable of using the recipient's bus service for the general public. The treatment of this group would be no different under the NPRM and the final rule. Even though the final rule does not require that non-disabled elderly persons be eligible for special services, some case systems indicated that they would probably continue to serve all elderly persons because it would be politically unacceptable to remove them. However, other case systems, whose special service program costs have increased dramatically in recent years, indicated they would consider eliminating able-bodied elderly persons from their special services, or restricting their use, if the final rule provides clear justification for their actions.

(2) Eligible Population to be Served on Special Services

The final rule requires recipients to regard as eligible for special services all persons whose disabilities, of whatever kind, prohibit their use of regular bus service. The Department's 1978 survey identified 1.4 million persons who are "severely disabled" in the sense that their problems are so severe that their use of existing mass transit systems is impossible. However, the "severely disabled" respondents asserted that they would use an accessible bus system, if it were made available. This is the group targeted by the Department as potentially eligible under the final rule to receive special service. Among the "severely disabled" group, it was estimated that:

- 20.0% use wheelchairs (all or most of the time)
- 39.0% use mechanical aids
- 28.0% are totally or legally blind
- 23.5% are totally deaf, and
- 30.0% experience some difficulty in movement or action, e.g., negotiating steps, stooping, walking, standing, which prohibits their use of fixed-route services.

Note: Percentages do not add to 100 because of multiple dysfunctions with persons reporting in more than one category.

The incidence of mental retardation among the "severely disabled" group was not estimated by the Department. However, other national surveys have found a high prevalence of severe physical disabilities among mentally retarded persons including ambulation problems, large or small motor skill problems, functional or total deafness and total or legal blindness. The survey estimates range from 35 percent of the total population of mentally retarded who have at least one additional severe physical handicap[5] to 50 percent of developmentally disabled persons (those with severe chronic disabilities attributable to a mental or physical impairment or a combination of impairments who are likely to require life-long care).[6] Therefore, it appears that there is considerable overlap of physical and mental dysfunctions among the "severely disabled" population targeted by the Department as potentially eligible for special service under the final rule. However, this group does not include persons without identifiable physical mobility problems whose conditions also might qualify them as eligible for special services, which are addressed in the next section.

(3) Persons Without Identifiable Physical Mobility Handicaps

Transit authority comments to the docket frequently mentioned the issue regarding the appropriateness of requiring special service for persons without specific, identifiable physical mobility handicaps whose conditions may not physically prohibit use of the regular bus system, (e.g., mental, visual, and hearing-impaired persons or the so-called "frail elderly). Such persons would not have to be served on special services under the rule, if they can use the bus system for the general public. Also at issue was the perceived inequity of requiring recipients to serve persons with these types of impairments on special services, when they would not have to be served under the Department's accessible bus option, which would benefit primarily wheelchair users.

The most frequently requested restriction on eligibility was to limit special service to persons with physical mobility handicaps, excluding able-bodied persons with mental and visual impairments. Transit authorities argued that without such restrictions, they

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[5] Conroy, J.W., and Derr, K.E., "Survey and Analysis of the Habilitation and Rehabilitation Status of the Mentally Retarded with Associated Handicapping Conditions," Department of Health, Education and Welfare, Washington, D.C., 1971.

[6] Bruninks, et al., "Client Oriented Service Indicators for the Administration on Developmental Disabilities to Evaluate the Targeting on Resources to Reduce Dependency and Provide Appropriate Care", University of Minnesota, October 1984.

would have to expand capacity and increase expenditures substantially. It is not clear from the docket comments whether inclusion of persons with these types of impairments would add significantly to the capacity requirements and cost of special services since many persons with, for example, vision or hearing impairments can and do use the transit service for the general public. The transit industry supplied no data or analysis to support its position.

Five of the six case study special service systems currently extend eligibility for special service to persons with visual or mental impairments. However, only the Kansas City, Missouri user-side subsidy program was able to supply data on the costs of serving these particular subgroups. In the Kansas City case study, it appears that about 20 percent of the total trips and total handicapped costs are accounted for by mentally retarded persons. Retarded and legally blind persons, together, account for about 40 percent of Kansas City's total handicapped costs. It is not clear how many of these users have other handicaps that independently would make them eligible for service under the rule based on their physical inability to use the regular bus system.

Other systems involved in providing service to handicapped individuals with whom DOT staff have discussed the problem have the impression that people with mental and visual disabilities are likely to make up a large portion of the "severely disabled" ridership of their systems, but they do not have actual trip data on the subject. Many mentally retarded and blind persons can be trained to use regular mass transit, and such training programs offer a means of reducing the dependence of such individuals on special service.

(4) Treatment of Persons with Visual Impairments

Nationally, persons with visual impairments account for 1,556,000 or 21.0 percent of all "transportation handicapped" persons, of whom 391,500 or 5.3 percent are totally blind or suffer severe visual impairments which prohibit their use of fixed-route transit service. Those in this latter group are accounted for in the Department's estimate of the "severely disabled" population who would potentially qualify for special services under the final rule. The remainder of persons with visual impairments can use existing bus service, albeit with more difficulty than the general public, and would not be required to be served by special services under the rule.

Many blind persons can be trained to use existing bus systems, and such training offers a means of reducing their dependence on special service. Mobility training programs to teach blind persons how to travel by themselves have been in existence for many years. Many national organizations such as the Easter Seals Society and local volunteer groups are experienced in providing

mobility training. Such programs obviate the need to provide specialized transportation services for people who can be successfully trained to use existing bus systems.

Under the final rule, recipients might fulfill their obligation to serve blind persons by providing them with mobility training or taking advantage of such training provided by others. Individuals who successfully complete training programs would not be required to be provided special service, since they would then be regarded as capable of using the existing bus service.

This would be consistent with the preamble which states that recipients could provide a combination of different types of accessible services designed to meet the needs of people with different sorts of handicaps.

(5) Treatment of Persons with Mental Impairments

The American Association on Mental Deficiency defines retardation as the expression of "significantly subaverage general intellectual functioning existing concurrently with deficits in adaptive behavior and manifested during the developmental period."[7] Nationally, persons afflicted with retardation comprise about 6 million individuals, or about 3 percent of the total population of the United States. A study conducted by the President's Committee on Mental Retardation of the transportation needs of the retarded established that the ability to travel independently is the factor that can most contribute to the enrichment of the life of the retarded.[8] The findings from this study suggested that approximately 5.4 million, or about 89 percent, of all retarded persons with mild or borderline retardation should successfully respond to travel training in the use of public transportation. (Borderline or mildly retarded persons score in the 52-83 point range of I.Q. tests and are considered to be educable and capable of independence.) In addition, moderately retarded persons representing 6 percent of the total retarded population (with I.Q.s in the 36-51 point range) also appear to be good candidates for travel training.[9] Thus, the President's Committee on Mental Retardation suggests that potentially 95 percent of all retarded individuals might be trained to travel independently on public transportation. Jane Starks, a researcher

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[7] H. Grossman, ed., Manual on Terminology and Classification in Mental Retardation, American Association on Mental Deficiency, Washington, D.C. 1973.

[8] Transportation and the Mentally Retarded, President's Committee on Mental Retardation, Washington, D.C., June 1972.

[9] Ibid, p. 14.

who has authored numerous publications on mobility training for retarded persons, makes a somewhat lower estimate (i.e., about two million retarded persons in the U.S. are educable and capable of using transit independently).[10]

Collectively, these findings suggest that many retarded individuals are potentially trainable to use public transit and that the applicability of mobility training is far more extensive than is known or practiced.

As pointed out in the discussion on page II-34, findings from a national survey conducted by the Department of Health and Human Services indicate that approximately 35 percent of the total population of retarded persons have at least one severe physical handicap that would independently qualify them for special service. Therefore, it appears that approximately 2,000,000 retarded persons are already accounted for in the Department's estimate of the "severely disabled" population potentially eligible for special service under the final rule. The remainder of retarded persons --those without physical mobility handicaps -- have cognitive problems which prevent them from using regular bus service, whether or not it is fully accessible. These persons would not be eligible for special services under the rule.

Findings from several mobility training programs reported in a recent NCHRP report support the theory that retarded persons can be trained to travel independently by transit. The percentages of mentally retarded persons successfully trained to use regular transit in several existing programs ranged from 72 percent in Wayne County, Michigan to 99 percent in Los Angeles.[11]

Based on the NCHRP findings, mobility training appears to be a highly cost-effective way to meet the transportation needs of retarded persons. A variety of travel-training programs sponsored by State and local governments, national organizations such as the Center for the Retarded and the Cerebral Palsy Foundation and local volunteer groups devoted to the retarded are able to supply teachers. Perhaps with training, more retarded persons will be able to use existing bus service.

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[10] Telephone conversation between Jane Starks, University of Texas and Nancy Ebersole, Department of Transportation, January 1985.

[11] Cost Effectiveness of Transportation Services for Handicapped Persons, National Cooperative Highway Research Program, National Research Council, Washington, D.C., September 1983, page 61.

(b) Cost Issues

Key eligibility issues influencing the demand for, and cost of, special services include (1) high percentages of non-disabled elderly users and their high trip rates and (2) the costs of achieving accessibility for the "severely disabled" population.

Non-disabled elderly patrons account for one-half or more of the trips on many special services, and while their inclusion lowers the average cost per trip, the total volume of elderly trips increases the overall systems costs. For example, Akron's SCAT service provides almost 70 percent of its total trips to non-disabled elderly persons. Pittsburgh, Kansas City, Missouri, and Brockton provide between 40-60 percent of their total revenue trips to non-disabled elderly patrons.

The costs of carrying severely disabled persons--wheelchair users in particular--are usually the largest proportion of costs for accessibility because, in general, the problems these users encounter in using special service systems increase the time and cost of providing the service. For example, paratransit systems which have a significant percentage of their fleet equipped with lifts generally transport high volumes of wheelchair patrons. This limits the ability of the provider to group rides, increases the time involved to load and unload passengers, and therefore, affects the overall efficiency and cost of the operation. As a result, the cost per trip for wheelchair users is often higher than the per trip cost for non-wheelchair users. Akron's paratransit system, for example, provides non-wheelchair trips at an average cost per trip of $6.45, compared to wheelchair trips which average $16.00 per trip. The Brockton paratransit system charges social service agencies $3.75 per trip for non-wheelchair users and $7.00 per trip for wheelchair users. The Kansas City user-side subsidy program (with only 10 percent of fleet vehicles lift-equipped to serve wheelchair users who cannot use regular taxis) provides 96 percent of its total trips to non-wheelchair patrons at an average total cost of $3.50 per trip. The operating cost for Kansas City wheelchair patrons who take 4 percent of total trips averages $7.40 per trip.

Collectively, the case studies illustrate a wide variance in program eligibility and great disparities in the current cost of providing special service ranging from an average operating cost

of $3.35 per trip for Brockton's paratransit service to $28.00 per trip for Cleveland's area-wide paratransit service versus an average cost per transit trip of approximately $0.95.[12]

Of course, other factors including the type of service, size of service area, nature of operator, operating hours, fare structures, etc., also affect these systems' costs. However, it is important to recognize that (1) eligibility is a prime determinant of special service cost, (2) that the cost per trip of serving severely disabled persons on special services is significantly higher than that of providing transit trips to the general public, and (3) some transit systems may have problem accommodating all trips that handicapped persons want to make whe the cost differentials are this great, without exceeding the limi on required expenditures.

(c) Criteria for Certifying Eligible Users

Many transit authorities have requested clarification as to whether certification procedures and/or physical tests could be used to identify eligible users entitled to special service under the federal eligibility requirement. Generally, they expressed concern that eligibility screening procedures could be interpret by the handicapped community as unduly burdensome, demeaning, or invasive of their civil rights. Many also were concerned that such procedures, if required on a case-by-case basis, would crea an additional administrative burden and increase their costs.

Most of the case study systems and many other special services examined presently use functional criteria to certify handicappe persons based on varying definitions of what constitutes eligibility for special service. For example, some systems limi service to persons requiring the assistance of a wheelchair, mechanical apparatus, crutches, canes or escorts to be mobile. A majority of the case systems use broader eligibility criteria such as inability to negotiate steps; walk unassisted; wait or stand in a moving vehicle; inability to stand for 10 minutes unassisted; and inability to read, comprehend or hear (at least 50 percent deaf) transit literature or information.

Although the final rule permits recipients to limit eligibility for special service to disabled persons who are physically unab to use the regular bus system, it does not allow localities to restrict service to one or more types of handicapped persons

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[12] This estimate is based on Section 15 data of the total operating expenses and total ridership figures reported b UMTA transit recipients for Fiscal Year 1982 (beginning J 1981 and ending June 1982). National Urban Mass Transportation Statistics, 1982 Section 15 Annual Report, U.S. Department of Transportation, November 1983.

(e.g., wheelchair users) with other types of handicapped persons categorically excluded. The rule does not prescribe any particular procedures that recipients must use to determine eligibility. However, localities could apply functional criteria, reflecting each person's ability to get on and off buses and to perform other physical tasks associated with the use of transit.

4. Service Impacts of Meeting the Eligibility Requirement in Case Study Systems

Current eligibility requirements in five of the six case study special service systems are broader than the federal requirement; including not only physically handicapped persons who would qualify as eligible under the final rule, but also non-disabled elderly, mentally retarded and other persons who are not physically disabled and, thus, would not be eligible for special service. The criteria for determining who is eligible varies from system to system. For example, the systems of Cleveland, Akron, Brockton, and Kansas City currently include able-bodied elderly persons and physically or mentally handicapped persons as eligible for special service. Brockton and Kansas City also include low-income persons as eligible for special service; however, neither system currently extends eligibility to all physically handicapped residents of the fixed-route service area who would be eligible for some form of accessible service under the rule.

The two remaining case systems of Hampton and Pittsburgh, limit program eligibility to handicapped persons only. However, Hampton's eligibility policy includes not only physically handicapped persons unable to use regular bus service, but also mentally retarded persons, which exceeds the eligibility requirement of the final rule.

The paratransit service in Pittsburgh is available to the general public, although only those individuals who cannot pass a physical test to board a bus are eligible for the Port Authority's user-side subsidy program. By screening the population in this way, Pittsburgh restricts eligibility to persons who roughly fit the federal eligibility requirement, i.e., disabled persons who physically cannot use existing bus service. This includes virtually all wheelchair users, persons requiring the assistance of mechanical apparatus or escorts to be mobile, and others with ambulatory problems severe enough that they cannot negotiate bus steps. However, other handicapped subgroups, such as the blind, are ineligible for the Port Authority subsidy unless they cannot ambulate. Some of these persons may need to be regarded as eligible for some form of accessible service under the final rule.

If the Port Authority provides or sponsors travel training programs for blind persons to use existing bus service, those who successfully complete training would not be eligible for special

service. Alternatively, the Port Authority might elect to equip it's transit vehicles and facilities with accessible devices to aid blind persons in using the bus system. Otherwise, such persons would be entitled to receive the Port Authority's user-side subsidy service under the rule.

5. Cost Impacts of Limiting Eligibility in Case Study Systems

Table 4 displays the current total costs of serving various eligible user groups in the seven case study systems, and the adjusted costs of serving only those handicapped users who would be eligible for special service under the rule. The costs cited are total annual costs. However, the case study systems were credited with all capital costs dating back to DOT's 1979 accessibility rule, and although annualized, potentially overstate actual compliance costs under the final rule.

In considering the relationship between costs and eligibility, it must be kept in mind that the types of service under discussion are different, e.g., paratransit versus user-side subsidy versus accessible bus, as these differences significantly influence the cost variances among the systems. However, by comparing the actual and adjusted program costs of serving various eligible user groups, it is possible to obtain a rough approximation of the cost impacts of meeting the eligibility requirement of the final rule.

The first column in Table 4 represents the current annual costs of providing accessible services in the case study systems. The costs for all systems, except Pittsburgh, reflect service to broader populations of disabled and non-disabled users than would be required under the final rule.

In order to estimate the impacts of the regulatory costs of serving only physically handicapped persons who would qualify for special service under the final rule, a series of adjustments was made reflecting both additions and subtractions in eligible users. First, the costs in the second column of the table have been adjusted to reflect the removal of trips by non-disabled elderly users and low-income persons who can use existing bus service. Next, the costs have been adjusted in Cleveland, Kansas City, Akron and Brockton to reflect the potential cost savings of eliminating trips by mentally retarded users and others, who presumably are not physically unable to use the existing bus system.

Ridership data in three of the four systems were insufficiently detailed to adjust for the trips of current users who would not qualify for special service under the final rule. Trip data for the Kansas City user-side subsidy service indicates that retarded patrons alone account for approximately 20 percent of total handicapped ridership. Ridership data from three UMTA user-side

subsidy demonstrations in Lawrence, Massachusetts; Kinston, North Carolina; and Montgomery, Alabama indicates an average trip use rate for mentally retarded patrons of 10 percent.

Starks[15], on the other hand, points out that mentally retarded persons constitute a significant percentage of the ridership on some specialized transportation systems. For example, mentally retarded users make 33 percent of the trips on systems in Houston and in a five-county area of southeastern Michigan, 30 percent of trips on systems serving Riverside and Pomona Valley, California and 25 percent of trips made on a system in Ft. Worth, Texas.

If it is assumed that the cost of carrying mentally retarded patrons is the same as their use rates, and that the cost per trip is the same for retarded users as for all other handicapped users, then the potential cost savings from eliminating trips by retarded users would range from about 10-33 percent. For purposes of this analysis, it was assumed that the four case systems could reduce their current program costs by 20-25 percent, if they limited eligibility in accordance with the final rule. (It is important to note that Hampton's cost have not been adjusted to eliminate trips by mentally retarded patrons since Hampton's current ridership is already very low compared to other case systems.)

In addition to adjusting the costs of current users, the cost adjustments in Pittsburgh, Kansas City and Brockton reflect the potential cost increases of serving additional handicapped residents of the fixed-route service area, who presently are not provided with special service, but would qualify for such service under the final rule.

Based on the adjustments in column two of Table 4, six of the seven case systems could realize net reductions in their current program costs ranging from an approximate three percent reduction in Pittsburgh to about an 80 percent reduction in Akron, if they limited eligibility in accordance with the regulatory requirement. We are aware that these calculations assume that some persons currently served (e.g., non-disabled elderly) would no longer be served; while, in fact, providers might well choose to continue providing service to them. However, the figures do reflect reasonable estimates of the costs of the final rule's eligibility requirement, compared to present outlays.

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[15] Starks, J.K., "Two Options for Travel Needs of Mentally Retarded: Implications for Productivity and Cost-Effectiveness." Transportation Research Board Record 850, Washington, D.C. 1982, pp. 25-31.

TABLE 4
COST IMPACTS OF LIMITING ELIGIBILITY
TO HANDICAPPED USERS IN CASE STUDY SYSTEMS
(In thousands of 1983 dollars, except where noted)

System	Current Total Program Cost	Adjusted Cost to Meet Eligibility Requirement	Percent Change Between Total Current and Adjusted Cost
Cleveland (1982)	3.900	2.100 1/	-46
Pittsburgh (1982-83)	2.793	2.698 2/	-3
Seattle	1.218	.983 3/	-20
Kansas City, Missouri	1.079	.540 4/	-50
Akron	1.145	.242 5/	-80
Newport News/ Hampton, Va. (1982-83)	.093	.093	
Brockton (1982-83)	.585	.264 6/	-55

1/ This estimate excludes the cost supporting non-disabled elderly, retarded and other mobile handicapped patrons who are assumed not to be physically incapable of using regular bus service.
2/ This estimate reflects the cost supporting 100% of trips by PAT's user-side subsidy patrons and about 50% of non-PAT subsidized trips which would be eligible for the PAT subsidy, if State and social service agency subsidies did not exist. It also includes the potential cost of providing blind persons with user-side subsidy service, although PAT might elect to train these persons to use regular bus service.
3/ This estimate reflects the annual cost of providing 53 percent lift-bus service and supplementary special services to disabled patrons. The costs of supplementary services supporting non-disabled elderly users have been subtracted out.
4/ This figure represents a combined regional system consisting of user-side subsidy service (within Kansas City, Missouri) and lift-bus service (for the rest of the region) which the Kansas City transit authority might provide to fully meet the final rule's eligibility requirement.
5/ This estimate excludes the cost supporting non-disabled elderly and retarded patrons who are assumed not to have physical disabilities prohibiting use of regular bus service.
6/ This estimate excludes the cost supporting non-disabled elderly, retarded and other patrons who are not physically incapable of using regular bus service. It also includes the increased cost of serving additional handicapped residents of the fixed-route area who would be eligible for service under the rule.

V. SUMMARY OF THE INCREMENTAL COSTS OF MEETING EACH SERVICE CRITERION IN THE CASE STUDY SYSTEMS

The previous sections compared the service criteria requirements to current levels of accessible service provided in the case cities, and assessed the cost impacts of adjusting service to meet each service criterion. In general, it was found that the case systems presently extend eligibility to a broader population of handicapped and elderly persons than is required under the final rule, and that these persons are receiving service which is as good as that provided the general public on regular transit (with respect to service area coverage, trip purposes, and sufficient capacity to serve present demand).

However, all systems require prior day reservations up to 24 hours for guaranteed service; most operate for shorter hours and fewer days than the fixed-route system; and most charge special service fares above those charged for regular transit service.

Table 5 summarizes the cost impacts associated with meeting each criterion. A word about the method of estimating these impacts may be useful. Current system operating costs and ridership were used to establish a cost per ride. The existing ridership base was then adjusted for each system to what it would be if the system carried only the riders required by the eligibility standards of the final rule. The costs of meeting various requirements were then established by estimating the ridership change from this adjusted base and applying the cost per ride. The cost impact of mandating immediate response service, rather than allowing an advance reservation requirement, was calculated on the basis of the existing ridership, as if no other changes were made. Table 6 is based on the Table 5 numbers and shows the results in percentage terms.

Since the case systems already provide levels of service which satisfy many of the criteria, at most, five, and sometimes only one, system(s) were affected per criterion. The estimates in Table 5 represent the potential impacts of fully meeting the service criteria requirements, except that no fare impacts were estimated for the case study systems which were assumed to be charging "comparable" fares. However, both the gross and net operating costs in most of these systems would increase if they are required to charge special service fares equivalent or only slightly higher than current bus fares.

The eligibility adjustments in most cases are based on transit authority estimates of, rather than actual data on, the number of eligible users who would have qualified for special service based on the NPRM requirement. However, since the case city transit systems appear to be fairly generous in granting eligibility to handicapped persons, these estimates may be somewhat high compared to what other transit systems would actually experience in meeting the eligibility requirement under the final rule.

The results from Tables 5 and 6 indicate that the cost impacts of removing service restrictions vary dramatically, particularly with shifts in eligibility and advance reservation requirements. For example, in the systems of Brockton, Cleveland, and Akron, the costs of paratransit with eligibility restricted to physically disabled users and with no advance reservations, i.e., immediate response service, are roughly equivalent to or less than the costs of the existing services with eligibility extending to all elderly and handicapped persons but with a 24-hour advance reservation requirement. In other words, the savings gained by advance reservation allow the serving of a larger ridership group, albeit with somewhat lower quality service.

For the remainder of case systems, the elimination of advance reservations would represent the most costly service adjustment (albeit one not required by the rule), because most of the other service criteria are already met by these systems.

Drawing upon the information developed in this chapter, the next chapter estimates the total regulatory costs for the case study systems to comply with the final regulations, and compares these to the proposed cost limits.

TABLE 5
INCREMENTAL COSTS OF MEETING EACH SERVICE CRITERION IN CASE STUDY SYSTEMS[16]
(In Thousands of Dollars)

Case System	Cleveland	Pittsburgh	Kansas City	Akron	Hampton/ Newport News	Brockton
Current Capital and Operating Cost	3900	2793	1079	1145	93	585
Incremental Cost to:						
Limit Eligibility to Persons Physically Unable to Use Regular Bus Service	-1800	-95	-539	-903	N/A	-321
Adjust Days and Hours of Service to Fixed-Route Level	407	N/A	10	N/A	10	19
Adjust Service Area to Fixed-Route Area	N/A	N/A	N/A	N/A	N/A	-39
Serve All Trip Purposes	600	N/A	N/A	N/A	N/A	N/A
Eliminate Waiting List	20	N/A	N/A	N/A	N/A	N/A
Remove Advance Reservation[17]	1280	*	*	520	*	293

[16] The incremental costs are cumulative, and reflect the successive effects of meeting each service criterion on the current program cost of the affected system.

[17] All systems require advance reservations up to 24 hours and would be affected if immediate response service would be required by this criterion; however, estimates were provided by only three systems.

TABLE 6
PERCENTAGE IMPACT ON CASE STUDY SYSTEMS CURRENT PROGRAM COSTS OF MEETING EACH SERVICE CRITERION

Change in Service Criterion	Impact on Annual Costs in Case Systems[18] (%)	Number of Systems Affected
Adjust Days and Hours of Service to Fixed-Route Level	+1 to +11	4
Adjust Service Area to Fixed-Route Area	-7	1
Serve All Trip Purposes	+15	1
Remove 24 Hour Advance Reservation (i.e. shorter response times)[19]	+33 to +50	3
Eliminate Wait List	+1	1
Limit Eligibility to Persons Physically Incapable of Using Regular Bus Service	-3 to -80	5

[18] These estimates reflect the percentage cost impact on current operating and capital expenses necessary to meet each individual service criterion.

[19] All systems would be affected by this criterion; however, estimates were provided by only three systems.

CHAPTER III

COMPARISON OF TOTAL ANNUAL COSTS OF SPECIAL SERVICES AND LIFT-BUS SYSTEMS WITH PROJECTED COST LIMITS IN CASE STUDY SYSTEMS

This first section of this Chapter presents the total annual costs for the seven case study systems as they are and adjusted to meet the final rule's service criteria, and compares these costs to the projected cost limit amounts. The second section identifies major service and cost factors, which appear to explain why some case systems can meet the regulations at costs within both spending limits while others cannot. The final section examines alternative regulatory approaches which might enable more systems to meet the regulations.

I. COMPARISON OF CURRENT AND ADJUSTED ANNUAL SERVICE COSTS AND PROJECTED COST LIMITS IN CASE STUDY SYSTEMS

Table 7 summarizes the total estimated regulatory costs for the seven case systems to operate their accessible services in full compliance with the final rule's service criteria and the maximum amounts which each system would be required to spend under the proposed 7.1 and 3.0 percent cost limits. (A detailed list of explanatory notes accompanies Table 7.)

Case study adjustments in Table 7 include both increases and decreases in service levels, since it seems reasonable to assume that systems which currently exceed some requirements but do not meet others would alter their services in both directions in order to keep their costs down. One of the interesting results of the case studies is that the current program expenditures of four cities (Cleveland, Kansas City, Akron, and Brockton) are higher than one or both of the proposed limits on required expenditures. The case study expenditures are not mandated by federal regulation. It is difficult to argue that expenditures at the cost limit levels proposed by the regulation would constitute "undue financial burdens" when a majority of the case systems already voluntarily exceed these levels.

Comparison of the current total annual program costs to the adjusted costs indicates that six of the seven case study systems could realize cost reductions ranging from approximately three percent in Pittsburgh to 80 percent in Akron, if they tailored their accessible services to meet all service criteria requirements of the final rule. Only the system of Hampton would experience a slight increase in its present program costs. (Note: Hampton's cost have not been adjusted to eliminate trips by retarded patrons, who would be ineligible for service under the rule. See previous discussion page II-43.) Comparison of the adjusted program costs and the projected cost limit amounts

TABLE 7

ANNUAL COSTS IN CASE STUDY SYSTEMS ADJUSTED TO MEET ALL SERVICE CRITERIA AND COMPARISON WITH PROJECTED COST LIMITS
(In thousands of 1983 dollars, unless otherwise noted)

City	7.1%/3.0% Cost Limits FY 1981-83	Total Current Program Cost	Service Criteria Now Met	Adjusted Total Program Cost	Estimated Population in Service Area
Cleveland (1982)	4296/3288	3900	all but 1,3	3119	1500
Pittsburgh (1982-1983)	7926/3691	2793	all but 6	2698	1500
Seattle	2137/3066	1218	all	854 1/ 1192	1300
Kansas City (1982-1983)	736/816	1079	all but 1,6	390 2/ 555 3/	448 1097
Akron	296/250	1145	all	242	660
Hampton/ Newport News (1982-1983)	181/163	93	all but 1	103	270
Brockton (1982-1983)	142/146	585	all but 1,6	245	130

1/ The lower adjusted figure for Seattle represents the actual current costs to supply lift-bus service on 53 percent of routes. This level of service fully meets the requirements of the rule, therefore, the cost of supplementary special services have been subtracted out. The higher figure represents what Seattle's costs would be, if its lift equipment were purchased in today's market (See text for fuller discussion of the cost assumptions).

2/ This figure represents the cost of the user-side subsidy program for Kansas City, Missouri handicapped residents within the city limits.

3/ What it would hypothetically cost the Kansas City Area Transit Authority to provide a combined regional service consisting of user-side subsidy service (within Kansas City, Missouri) and lift-bus service (for the remainder of the region) which would fully conform to the service criteria.

Explanatory Notes - Table 7

- All costs are expressed in 1983 dollars, except where otherwise noted in the table. Transit fiscal year 1983 costs cover the period of July 1982 to June 1983.

- The 7.1 percent cost limit for each case system is based on an average of UMTA transit operating assistance and capital grants under Section 5, 9, 9A and 3 for the most current and two preceding federal fiscal years. (Federal fiscal year runs from October to September.) The 3.0 percent cost limit is based on total operating expenses averaged for the current and two preceding fiscal years.

- For purposes of the table, the service criteria are numbered as follows: (1) same days and hours; (2) same service area; (3) no restrictions or priorities based on trip purpose; (4) response time (within 24 hours); (5) special service fares comparable to regular transit fares; (6) eligibility (physically handicapped persons who cannot use regular bus service are eligible).

- Both the current and adjusted program costs include all capital purchases dating back to the Department's 1979 accessibility rule; however, the capital expenditures are annualized based on appropriate capital cost recovery factors assumed in the individual case studies.

- The hypothetical cost estimates for 50 percent lift-bus service in Seattle and 18 percent lift-equippage in Kansas City assume a lift installed on a standard bus costs $9,500 and $15,000 per lift for an articulated bus; an annual $910.00 maintenance/operating expense in Seattle, and $975.00 in Kansas City; and an assumed spare ratio of 20 percent for the Seattle Metro system and 100 percent for the Kansas City system.

indicates that the costs of meeting the final rule's service criteria in six of the seven case systems fall below both the 7.1 and 3.0 percent cost limit levels.

Collectively, the case study results suggest that the proposed approaches to limiting recipient's required expenditures are reasonably related to the provision of handicapped transportation meeting the final rule's service criteria. Moreover, all but one of the case study systems could realize reductions in their current program costs supporting elderly and handicapped travel by tailoring their services to comply with the rule. However, there is substantial variation among the case systems in the kind and amount of service they can provide within their cost limit levels.

The next section examines cost and service variables in case study cities of similar size which appear to account for differences in their abilities to meet the regulations.

II. COMPARISON OF LIFT-BUS AND PARATRANSIT COSTS IN LARGE CASE STUDY CITIES (OVER ONE MILLION POPULATION)

The cost of Seattle Metro's lift-bus service, which serves 53 percent of routes, represents the least expensive approach among the large case study cities for complying with the regulations. However, it is important to recognize that it took Seattle Metro approximately five years to build up its fleet to 53 percent lift-equippage, and lift prices have escalated considerably since Seattle began its initial lift purchases in 1978. In order to use Seattle Metro's program as a meaningful example from which to draw national conclusions about the potential regulatory costs of accessible bus service, it's annual lift-bus cost of $854,000 was inflated to illustrate what other transit authorities might have to spend hypothetically to implement a new lift-bus service in compliance with the final rule's service criteria.

The $1.2 million cost shown in Table 7 under the Seattle case represents an estimate of the annual level of expenditure necessary to operate 50 percent lift-bus service at 1983 prices. The cost of the hypothetical lift-bus system is well below the proposed cost limits, representing 3.9 percent of Seattle Metro's federal transit aid and 1.2 percent of its total operating budget. Based on these results, it is probable that most large transit systems can provide the lift-bus option and comply with the rule for less than the proposed cost limits.

Comparison of the adjusted lift-bus cost in Seattle and the adjusted paratransit costs in Pittsburgh and Cleveland indicates that these systems would have to spend roughly 2.5 times Seattle's cost to operate their special services in full compliance with the final rule's service criteria. The adjusted cost of Cleveland's publicly operated paratransit service is approximately 15 percent greater than the cost of the privately operated paratransit brokerage system in Pittsburgh.

Both the Pittsburgh and Cleveland systems serve counties with similar sized general populations, however, the eligible handicapped population in Cleveland is larger since its eligibility requirement is more liberal than Pittsburgh's. Both systems require up to 24-hour advance reservations for guaranteed service, and days and hours of service are roughly comparable. Pittsburgh's service area is substantially larger than Cleveland's, and Pittsburgh serves fewer group rides.

A major factor which appears to account for the cost difference in these two systems is public versus private service delivery. Pittsburgh brokers and operates its service through private profit and non-profit providers at a flat rate per vehicle hour. This arrangement avoids the high direct capital cost associated with Cleveland's ownership and operation of its vehicle fleet and construction of a new facility to house the paratransit operation. Significantly, Cleveland's annual capital expense accounts for approximately one-third of its total program costs.

This capital estimate, however, assumes that Cleveland would be credited with all vehicle purchases, plus land and construction payments for the paratransit facility dating to the DOT'S 1979 transit accessibility rule. Under the final rule, these retroactive credits could not be taken. If Cleveland claims only the capital expenses occurring after publication of the rule, it's actual program cost would probably be about 10-15 percent below the adjusted cost in Table 7, provided the final rule permits annualization of the capital expense.

Eligibility appears to be another important variable accounting for the cost difference in these two systems. Based on the trip adjustments performed in the two cases, the Cleveland system (with a liberal eligibility policy including a wide range of handicapped subgroups) would provide approximately 15 percent more handicapped trips than the Pittsburgh system (with eligibility restricted to persons who are unable to negotiate steps or who are blind). The Cleveland system serves an undeterminable number of trips by patrons with V.A. and other disabilities, some of whom may be capable of using regular transit. Data were not available to accurately adjust ridership to reflect the removal of such trips. In addition, Cleveland estimates that 38 percent of its elderly users are handicapped and unable to use regular transit. This rate appears high compared to the DOT survey estimate which identified 21 percent of the nation's elderly population as "transportation handicapped" (i.e., experience varying degrees of difficulty in using regular transit).[1] For these reasons, Cleveland's ridership was not reduced by as great a proportion as was the case in other cities when adjustment was made for compliance with the eligibility criterion.

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[1] Summary Report of Data from National Survey of Transportation Handicapped People, U.S. Department of Transportation, Washington, D.C., June 1978, page 17.

If Cleveland were to restrict program eligibility to physically disabled persons unable to use regular bus service, and claimed only an annual capital expense held to purchases occurring after the rule, it probably could provide service for about 15 percent less than the adjusted cost shown in Table 7.

Based on the case study results, it is probable that transit systems serving large cities could provide lift-bus or special services and fully comply with the service criteria at costs below the proposed cost limits. The estimated annual cost of equipping one-half of the bus fleet with lifts appears to be far less costly than the special service option for large cities to comply with the regulations. However, lift-bus service does not appear to be a particularly cost-effective way of meeting the transportation needs of large numbers of disabled persons. The incremental cost of making a bus fleet accessible is largely dependent on the demand for lift service. Therefore, the cost of a lift-bus trip decreases as the number of lift boardings increases. To date, the Seattle Metro bus system has attained the highest lift use rate of any large lift-bus system, and provided 70,500 lift boardings in 1983. Based on the adjusted cost of the Seattle service, the estimated cost per trip is $16.90. In comparison, the paratransit systems in Cleveland and Pittsburgh are more cost-effective (with costs per trip of $12.06 and $11.95), and serve roughly four times the number of disabled trips as Seattle's lift-buses. This finding supports the proposition that, in choosing a mode of service for disabled persons, providers may find that there is a trade-off between minimizing cost and maximizing cost-effectiveness.

III. COST COMPARISON FOR COMBINED LIFT-BUS/SPECIAL SERVICE SYSTEMS IN MEDIUM-SIZED CASE CITIES (500,000 TO ONE MILLION)

The $555,000 cost estimate to provide a combined system of user-side subsidy taxi service in Kansas City, Missouri, and lift-bus service (for the remainder of the region) is more than double the adjusted cost of the combined paratransit/lift-bus system operated by Akron Metro. Kansas City's adjusted cost is well below both cost limit amounts, while Akron's adjusted cost is closer to the cost limit levels.

Kansas City: This program represents a unique service situation among the case study systems. The Kansas City, Missouri, Department of Transportation, rather than the UMTA transit aid recipient (the Kansas City Area Transit Authority), brokers and operates a user-side subsidy service for elderly and physically and mentally handicapped residents of the city. Current patronage includes persons who could use regular bus service and others who reside in areas of the city unserved by transit, which exceeds the final rule's eligibility requirement. However, handicapped persons residing in the fixed-route service area outside Kansas City, Missouri, are not provided user-side subsidy service. Some of these persons are physically unable to use regular bus service and would be eligible for accessible service under the rule.

The Kansas City DOT contracts out the user-side subsidy service to for-profit and non-profit carriers at a flat rate of $3.50 per trip; $7.40 for wheelchair patrons. The low cost of service is attributable to the use of existing carriers who provide their own insurance, the use of non-union drivers, and shared ride taxis.

The Department's adjustments in the Kansas City user-side subsidy service consisted of eliminating trips by non-disabled and retarded patrons who would not qualify for service under the rule, and increasing special service hours to match those of the fixed-route operation. Ideally, the costs of serving physically disabled patrons who reside outside the fixed-route service area should have been eliminated. This was not done, because there is no reliable information on the number of riders in this group. However, based on the Department's adjustments, the Kansas City user-side subsidy program reasonably approximates a level of service necessary to meet all service criteria, except the eligibility requirement.

The KCATA could claim the user-side service, although not the cost, to fulfill it's obligations under the final rule. However, in order to fully comply with the eligibility requirement, the KCATA would have to initiate some form of accessible service for eligible handicapped persons residing in the fixed-route service area outside of Kansas City, Missouri. A lift-bus operation probably represents the most cost-efficient means of serving these people. The KCATA estimated that it could serve these areas by equipping 18 percent of it's buses with lifts. This estimate includes a spare ratio of 100 percent which is quite high compared to spare levels maintained by Akron Metro and other authorities operating lift-buses. However, the KCATA considers the spare rate necessary to guard against unforeseen problems during program start-up and to provide 100 percent accessibility on bus routes with sparse service.

The adjusted cost for the Kansas City case reasonably approximates a level of combined user-side subsidy/lift-bus service necessary to meet all service criteria of the final rule. If the KCATA held it's spare ratio to 20 percent (in line with other lift-bus properties), the actual cost of the Kansas City combined system would be about 7 percent less than the adjusted cost estimate in Table 7.

Akron: The Akron Metro transit authority operates a combined paratransit/lift-bus system with a fleet of 20 paratransit vehicles, and 16 lift-equipped buses. Approximately one-half of the paratransit service is contracted out to taxis. Both paratransit and lift-bus service is available on weekdays, while lift-buses are used exclusively on evenings and weekends to provide 50 percent route coverage. The paratransit service is currently available to non-disabled elderly and physically and mentally disabled persons in Akron and three adjacent towns, which have a combined population of 660,000 persons.

Based on the Department's adjustments to eliminate trips by non-disabled elderly and retarded patrons who would not be eligible for special service under the rule, Akron's combined system appears to meet all service criteria of the final rule.

The adjusted program cost for Akron's combined system totals $242,000, with an average total cost of $5.90 per handicapped trip, compared to the adjusted cost of $555,000 for the Kansas City combined system, with an average total cost of $5.36 per handicapped trip.

Comparison of the operating characteristics of the Kansas City and Akron special services indicates that both systems require prior day reservations up to 24 hours, and all trip purposes are served. Kansas City's service area is substantially larger than Akron's, and Kansas City provides more days and hours of service and groups more rides. Methods of service delivery also differ significantly in these two systems. Akron Metro owns and operates a fleet of paratransit vans and pays it's van drivers at transit union wage rates. Approximately one-half of Akron's service is contracted out to taxis. The Kansas City DOT contracts out the user-side subsidy service to private carriers at non-union wage rates.

Public versus private service provision does not appear to be a major factor influencing the cost difference in these two systems. Akron's annual capital expense for paratransit vehicle purchases accounts for only one percent of its total cost, and the cost per trip for contracted taxi service is approximately 10 percent higher than the per trip cost of the transit-operated vans. However, over the long run, Akron could probably lower its overall costs by switching to a user-side subsidy taxi operation.

A major reason for the cost difference in these two systems appears to be due to differences in the size of the population served. The estimated population in the Kansas City fixed-route service area is roughly 900,000 persons, or about one-third times greater than the estimated population of Akron's service area. Therefore, the eligible handicapped population in the Kansas City area also would be considerably larger than in Akron. Based on the adjusted handicapped ridership in the two systems, Kansas City would serve approximately two and one-half times the number of handicapped trips as Akron. Other variables which appear to explain Akron's lower cost include (1) a smaller service area which may result in lower passenger miles per passenger, (2) the lower number of total service hours supplied, and (3) the provision of roughly one-half of the total service hours by lift-buses.

Both the adjusted costs of Kansas City's and Akron's programs are less than the projected cost limit amounts, although Akron's cost is closer to the limits. A comparison of the 7.1 and 3.0 percent cost limit amounts calculated for other medium-sized transit systems identified in the FY 1982 Section 15 UMTA report indicated

that the maximum expenditure levels required by the rule in most of these systems fall in between those calculated for Kansas City and Akron. Based on these findings, it appears probable that other medium-sized transit systems could comply with the final rule's service criteria by providing a combination of lift-bus and special service at costs within the proposed cost limits.

IV. COST COMPARISON OF PARATRANSIT SYSTEMS IN SMALL CASE STUDY CITIES (UNDER 250,000)

The adjusted cost of the semi-publicly operated paratransit service in Brockton, Massachusetts, is approximately two and one-half times greater than the adjusted cost of the Hampton/Newport News paratransit system, which contracts out the bulk of the service to private taxi operators. Hampton's adjusted cost is less than both cost limit amounts, while Brockton's cost exceeds both limits.

Brockton: This is the smallest case system with an estimated population of 130,000 persons residing in the fixed-route service area, and a total transit fleet of 66 vehicles. The Brockton transit authority currently provides paratransit service for elderly persons, low-income school children, physically and mentally disabled residents of Brockton, and social service agency clients in two adjacent towns. Under the rule, Brockton could limit program eligibility to patrons who are physically incapable of using regular bus service. However, Brockton also would have to extend special service to all eligible handicapped residents of the neighboring towns, which are part of the fixed-route service area.

The transit authority owns and maintains the paratransit fleet of 27 vans, sets fares and establishes agreements with participating agencies, but contracts out the service delivery to a non-profit provider. Most of the paratransit drivers are paid non-union wage rates. The Brockton system currently meets all of the final rule's service criteria, except the eligibility and days and hours of service requirements. Also, Brockton serves trips outside the fixed-route area, which exceeds the requirements of the rule.

Based on the Department's adjustments to (1) limit ridership on the special service to physically disabled persons who fit the eligibility definition of the rule, (2) increase days and hours of service to match those of the fixed-route system, and (3) eliminate out-of-town trips, the adjusted cost of Brockton's paratransit system reasonably approximates a level of service necessary to fully meet the final rule's service criteria. The adjusted cost of the Brockton service exceeds both cost limit amounts.

Hampton/Newport News: These cities have a combined population of 270,000 served by the Pentran transit system with a total fleet of 122 transit vehicles. Pentran currently provides paratransit service to physically and mentally disabled residents of Hampton

and Newport News who cannot use regular transit. The transit authority brokers its paratransit service and owns 9 paratransit vehicles, but contracts out a substantial share of the service to a private taxi company operating 20 vehicles. Special service drivers are paid a low non-union wage and do not receive fringe benefits.

Based on the Department's adjustments to increase special service hours to match those of the fixed-route bus system, the adjusted program cost in Hampton reasonably approximates a level of service necessary to meet the final rule's service criteria. (Note: It is important to reiterate that Hampton's cost have not been adjusted to eliminate trips by mentally retarded patrons since total current ridership is already very low compared to that in Brockton and other case systems).

The Hampton/Newport News area includes a total population of 270,000 persons which is double the size of the population in Brockton's service area. Also, the estimated transit disabled population in Hampton is about 50 percent greater than that in Brockton. Comparison of the operating characteristics in the two systems indicates that both Hampton and Brockton require prior day advance reservations up to 24 hours; days and hours of service are similar; and both systems serve all trip purposes. Brockton's service area is smaller than Hampton's and Brockton groups more rides.

Public versus private service delivery does not appear to be a major factor influencing the cost difference in these two systems. The Hampton system directly operates a portion of the paratransit service and pays it's van drivers non-union wage rates. A substantial share of Hampton's service is contracted out to a local taxicab company. Brockton owns it's paratransit vans, but contracts out service delivery to a non-profit provider which pays most drivers non-union wage rates. The annual capital expense for paratransit vehicle purchases in both Hampton and Brockton accounts for roughly 10 percent of their total program costs. Based on the adjusted cost figures, the average total cost per handicapped trip in Hampton is $6.43 compared to $4.77 in Brockton.

A shift from the semi-publicly operated paratransit service to user-side subsidy taxi service does not appear a viable option for reducing costs in Brockton. Currently, the transit authority pays an average subsidy per contract cab trip of $4.00 to $7.00, compared to the adjusted average cost of $4.77 per van trip.

Program eligibility appears to be a major factor accounting for the cost difference in these two systems. Based on the trip adjustments performed in the two cases, the Brockton system (with a more liberal eligibility policy including a wider range of handicapped subgroups) would potentially provide more than three the number of handicapped trips served in Hampton. Therefore, the

higher cost in Brockton appears to be attributable to: (1) a liberal eligibility policy which results in more handicapped trips, and (2) the heavy concentration of State social programs in Brockton and the V.A. Hospital serving the area which generate higher demands for the special service. If Brockton reduced its paratransit expenditure to the cost limit level, its service would be cut approximately in half.

V. CONCLUSIONS

Several points emerged from the analysis of the case study systems. These are:

- Restriction of eligibility to only the handicapped market required to be served by the final rule leads to substantial cost savings in special service systems.
- Use of private operators--taxi companies and non-profit providers--appears to hold a great potential for cost reduction and effectiveness, compared with transit agency operation of specialized services.
- The fact that the final rule permits special service systems to require prior day reservations, rather than provide immediate response service, allows some systems to meet the service criteria under the cost limits who otherwise could not do so.
- The fact that the rule permits special service systems to offer subscription service allows substantial cost savings compared to what would otherwise be the case.
- For case systems serving large cities (population over 1,000,000), accessible fixed-route bus service appears to offer the lowest-cost means of satisfying federal accessibility requirements, although it is unlikely to offer significant transportation benefits to most segments of the transportation handicapped community.
- Systems in small cities (population under 250,000) may have the greatest difficulty in satisfying federal accessibility requirements within the proposed cost limits.

CHAPTER IV

MODEL ANALYSIS OF THE PROJECTED ANNUAL COSTS AND COST LIMITS FOR SPECIALIZED TRANSPORTATION SERVICES AND ACCESSIBLE BUS SERVICE IN CITIES OF DIFFERENT SIZES

This Chapter summarizes the results of a consultant's study commissioned by the Department to assess the potential costs of the final rule. The first section describes the salient features of the consultant's computer model and the study approach. The second section presents the projected incremental costs of meeting each service criterion for average-sized paratransit systems in four population categories. The third section projects the total annual costs for transit systems to operate special services and accessible bus systems in average-sized cities and examines the ability of these systems to meet the service criteria within the proposed cost limits. The complete report of the consultant's study is available on request from the Department.[1]

I. COST ESTIMATING METHODOLOGY

An econometric model, based on operating data from 53 paratransit systems in 48 cities surveyed by UMTA in 1979-80, was used to estimate paratransit costs under alternative levels of service and service criteria. Technical details of the model are provided in the consultant's report; its salient features are described below.

The model estimates demand, cost per trip, and total annual cost. The analyst specifies details regarding fare levels; whether vehicles will be lift-equipped; whether eligibility will include all handicapped and elderly persons, or only "severely disabled" persons unable to use fixed-route service; whether a 24-hour advance reservation or immediate response service will be required; whether service will be restricted to a geographic area smaller or comparable to the area served by the regular transit system; and whether only limited destinations in the service area will be served--such as major employment centers and hospitals--or whether passengers may choose any destination.

The model allows for variation in urban size, residential density, and vehicle utilization. Thus, it is suitable for analyzing the potential impacts of compliance with the final rule in different sized cities. The model also allows for variation in a number of the key service criteria. It does not account for all of them,

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[1] Lewis, David. Analysis of the Department of Transportation's Regulations Regarding Transportation of Disabled and Elderly Persons, James F. Hickling Management Consultants, Ltd., Ottawa, Ontario, Canada, September 1984.

however, and accounts only roughly for others. In particular, it does not account for changes in cost due to variation in the number of days or hours of service, or changes in cost and capacity due to the imposition of waiting lists. Moreover, the model accounts for the impacts of trip purpose restrictions indirectly by using destination restrictions--such as "many-to-few" systems that serve unlimited origins but limit service to only a few selected destinations like employment and shopping centers and hospitals--as a surrogate for trip purpose restrictions. The consultant's report should be referred to for full particulars.

The eligibility adjustment performed in the model is based on the assumption that special service trips would be limited to "severely disabled" users (persons with disabilities sufficient to physically prevent them from using fixed-route transit service). For purposes of estimating the demand and cost impacts of meeting the eligibility requirement, the model separated the systems in the dataset into two user-type categories. Systems serving "heavy wheelchair" usage (25 percent or more of trips) were considered to be in the "severely disabled" user category. Systems serving all "transportation handicapped" persons were defined as those providing fewer than 25 percent of total trips to wheelchair users.

Some of the systems in the "severely disabled" user category limit trips to wheelchair users only; others extend eligibility to physically and mentally handicapped persons. Therefore, it is difficult to identify the extent to which various handicapped subgroups are accounted for in model trip projections, with the exception of wheelchair trips which represent 25 percent or more of total trips.

The consultant asserted that the number of trips estimated by the model for the "severely disabled" is roughly representative of the level of service required for the 1.4 million "severely disabled" persons over 5 years of age identified in the Department's national survey as unable to use public transportation. These persons asserted that they would use fixed route transit service if it were fully accessible.[2] Among the "severely disabled" population, it was estimated that:

- 20.0% use wheelchairs all or most of the time
- 39.0% use mechanical aids
- 28.0% are totally or legally blind

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[2] National Survey of Transportation Handicapped Persons, U.S. Department of Transportation, Washington, D.C., June 1978.

- 23.5% are totally deaf
- 30.0% experience some difficulty in movement or action, e.g., negotiating steps, stooping, walking, standing, etc.

NOTE: Percentages do not add to 100% because there is overlap of multiple dysfunctions with persons reporting in more than one category. The incidence of mental retardation among the "severely disabled" group was not estimated by the Department, however, it is probable that there is substantial overlap of physical and mental dysfunctions among the "severely disabled" group. (See previous discussion on eligible user population in Chapter II.)

II. METHODOLOGICAL APPROACH - PARATRANSIT ANALYSIS

The approach used in the analysis consisted of estimating the operating-plus-capital costs of providing transit authority-operated paratransit services in each of four population categories (see Table 8). The average city size in each population group is used for the analysis. The model analysis excludes the nation's six largest UMTA recipients: New York, Chicago, Los Angeles, Philadelphia, Boston, and San Francisco, since their relatively very large sizes would substantially distort the analysis for other cities. Their costs are included in the estimate of aggregate national costs in Chapter VI.

TABLE 8
NUMBER OF U.S. URBANIZED AREAS AND THEIR AVERAGE POPULATION SIZE IN FOUR POPULATION CATEGORIES

Population Category	Number of Urbanized Areas	Average Population Size
Less than 250,000	197	118,086
250,000 - 500,000	35	356,542
500,000 - 1 million	22	692,732
1 million or more (excluding New York, Los Angeles, Chicago, Philadelphia, Boston, San Francisco)	19	1,573,328

Source: U.S. Census of Population

In practice, of course, costs will vary among paratransit systems in identically sized cities depending upon local wage rates and many other factors. For analytic purposes, the hourly operating expense in all population groups is assumed to be $23.00 per vehicle-hour, the average of the 53 paratransit systems analyzed.

The hourly cost tends to reflect union-level wage rates. The productivity of typical transit-operated paratransit systems ranges from 2 to 3 passenger trips per vehicle hour. At $23 per vehicle-hour, the cost ranges from $7.67 to $11.50 per passenger trip.

The demand for user-side subsidy taxi services was assumed to be the same as that for paratransit services. For analytical purposes, the average total taxi cost per trip (including a fare of $4.67 and a 20 percent add-on for administrative expenses) was estimated at $5.60, based on data from various UMTA surveys.[3] Inclusion of a total fare in the $5.60 estimate potentially overstates the costs of user-side subsidy services since few transit operators appear to subsidize 100 percent of user's fares. Data from a recent UMTA survey indicate that most user-side subsidy taxi programs subsidize 50 percent of the fare and users pay the remainder.[4] Therefore, costs predicted by the model may be on the high side compared to what many transit systems would have to spend to comply with the rule, dependent on the subsidy formula adopted.

The 53-system UMTA dataset used to calibrate the model contains eight systems that operate multiple elements of service, serving different user groups, trip purposes or geographic areas. The model treated these elements as separate systems. Based on regression analysis, the model measured a decline in trips per capita with increasing city population. This may be a function of the fact that larger cities with multiple systems are dividing a constant market among several providers. Consequently, the market share per provider is smaller than if there were only one system. This effect was most pronounced in large cities where more multiple systems would exist, and where small specialized systems, e.g., service clubs, might also be more prevalent. Also, lower trips per capita in large cities might stem from supply constraints, such as waiting lists and heavy congestion which were not measured in the UMTA survey. Costs predicted by the model are interpreted as yielding cost per system, as opposed to cost per city. If a large city has more than one paratransit system, then cost per city would be higher than indicated by the model.

In summary, it should be clearly understood that some of the cost assumptions in the model may underestimate the potential costs for special services to meet certain criteria under the rule, while

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[3] According to the International Taxicab Association, the $5.60 estimate may actually be about 15 percent higher than the national average taxi fare (interview with Alfred Lagasse, August 22, 1984).

[4] National User-Side Subsidy Inventory, Final Report, UMTA/TSC Project Evaluation Series, U.S. Department of Transportation, Washington, D.C., May 1982, pp. 19-21.

other assumptions could result in overestimates. For example, the model does not account for charges in the costs of meeting the days and hours of service requirement, or the additional costs which some large cities would encounter from operating more than one paratransit system. On the other hand, the cost projections for user-side subsidy taxi services may be higher than most recipients would encounter unless they subsidize 100 percent of the fares charged to eligible users. Therefore, while the model's results cannot be taken as precise estimates, it does provide useful information on the relative options in urbanized areas.

III. METHODOLOGICAL APPROACH - ACCESSIBLE BUS ANALYSIS

The final rule does not specify a percentage of accessible buses that a recipient must provide to meet the service criteria. The model analysis estimates the annual cost of purchasing and maintaining lifts on 50 percent of buses in a fleet, which was the level proposed in the NPRM. For comparative purposes, cost estimates also are made for 100 percent lift-equippage. While it is impossible to estimate the actual percentage of accessible buses that will result from the final rule, it seems probable that the cost estimates for 50 percent lift-equippage represent a reasonable upper limit on what most recipients would have to spend to comply with the rule.

The capital cost of adding a lift to a regular transit coach was put at $10,000. The annual operating and maintenance costs were estimated at $800.00 annually; based on $650.00 per lift for maintenance, and $150.00 per lift for insurance, promotion and marketing costs.[5] Costs were estimated both on the basis of no fleet expansion, and on the basis of a 3.5 percent fleet expansion to restore lost seats and provide more frequent maintenance. The fleet expansion assumption is generous since, according to the NCHRP study, few operators have had to expand seating capacity and it has not been necessary to increase maintenance because the frequency of lift use has been low. In any event, one would expect that, at most, the provision of space for wheelchairs would have a minimum impact on total (sitting and standing) capacity. For these reasons, the Department believes it is more reasonable to rely on the "no fleet expansion" figure in making projections concerning the costs of accessible bus systems.

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[5] These estimates are drawn from National Cooperative Highway Research Program report, Planning Transportation Services for Handicapped Persons--User's Guide, September 1983. The figures are those recommended in the NCHRP report and reflect the lower--and, in our opinion, more realistic--end of the observed range (see p. 17, Tables 19 and 20, and p. 42 of NCHRP report).

IV. INCREMENTAL COST IMPACTS OF MEETING THE SERVICE CRITERIA FOR PARATRANSIT SYSTEMS

Table 9 displays the model's estimated costs for transit systems in four city size groups to provide a very restricted "minimal" paratransit service--one in which eligibility is limited to severely disabled persons, trip destinations are restricted (surrogate for trip purpose restrictions), only part of the geographic area is served, a response time of 24 hours or more is required, and subscription service is required for recurring trips. The table then shows the estimated impacts of removing each restriction, not cumulatively, but rather the effects of lifting only one restriction at a time.[6] Table 10 shows the same results in percentage terms. It also shows the consultant's estimate of the effect of a reduction in the fares to the level of the regular transit fare.

A. Response Time

Criterion: Response time must be 24 hours or less.

Cost Impact - According to the model analysis, requiring immediate response service rather than permitting a 24-hour response time, could increase annual paratransit costs on average by nearly 70 percent (over the base cost assumed for the "minimal" system), or by up to some $300,000 in a large transit system serving a city of over one million population.

B. Geographic Range of Service

Criterion: Service must be available to handicapped persons throughout the same general service area as that served by the regular transit system.

Cost Impact - According to the model estimates in Table 10, paratransit systems which restrict geographic coverage within the service area could increase annual costs on average by approximately 40 percent (over the base cost assumed for the "minimal" system) by expanding service to the entire service area.

C. Trip Purpose

Criterion: Restrictions or priorities based on trip purposes are prohibited.

Cost Impact - The model accounts for the impacts of this criterion indirectly by using "many-to-few" systems (those which serve

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[6] Cumulative costs--that is, the total costs associated with alternative "packages" of service attributes--are given in the next section.

TABLE 9
ANNUAL COSTS FOR AN AVERAGE-SIZED TRANSIT SYSTEM IN EACH CITY SIZE GROUP TO OPERATE A LOW-QUALITY, HIGHLY RESTRICTED PARATRANSIT SERVICE: AND THE INCREMENTAL COSTS FOR SELECTED SERVICE IMPROVEMENTS
(in thousands of 1983 dollars)

	Under 250,000	250,000-500,000	500,000-1,000,000	Over 1,000,000
Costs of Minimal System[7]	159	245	317	491
Incremental Cost to:				
Remove 24 Hour Reservation from Minimal System	+104	+166	+214	+334
Remove Geographic Area Restriction from Minimal System	+70	+108	+135	+212
Remove Trip Destination Restriction from Minimal System	+92	+124	+184	+290
Extend Eligibility to all "Transportation Handicapped" Persons	+80	+163	+198	+27

[7] The following service attributes are assumed for hypothetical minimal system:
- Eligibility is restricted to severely disabled persons.
- Subscription service is required for recurring journeys.
- Advance reservation of 24 hours or more is required.
- Trip destinations are restricted (surrogate for trip purpose restrictions).
- Geographic range of service is restricted.

NOTES:
- Operating cost per vehicle is assumed to be $23.00.
- The annual costs shown in the Table include both operating expenses and the depreciated capital costs for vehicles.
- The incremental costs shown are not cumulative.
- "Severely disabled" means unable to use the regular route system.
- "Transportation handicapped" includes persons able to use the regular route system with difficulty.

TABLE 10
INCREMENTAL COST IMPACTS FOR HIGHLY RESTRICTED PARATRANSIT SYSTEMS TO MEET THE SERVICE CRITERIA

CHANGE IN SERVICE LEVEL	PERCENTAGE IMPACTS ON ANNUAL COST (Average Across all City Sizes)	
	Average Impact	Range Based on One Standard Deviation [8]
Remove 24 Hour Advance Reservation	+68	+35 to +109
Remove Geographic Area Restriction	+43	+26 to +63
Remove Trip Destination Restriction	+57	+31 to +98
Extend Eligibility to all "Transportation Handicapped" Persons	+61	+31 to +98
Reduce Fare to Level of Transit Fare	+38	0 to +38

Source: Estimates in Table 9. Estimate for fares derived in text.

[8] One standard deviation above or below the mean includes 68 percent of the observed cities in the range shown in the table.

unlimited origins but only a small number of destinations, such as employment and medical centers) as surrogates for restrictions on trip purposes. This treatment of the criterion is of limited utility, since systems which restrict or prioritize trip purposes typically are not restricted as to destinations within the service area (although it is likely that systems which restrict trip purposes serve fewer total destinations than unrestricted systems). To the extent that "many-to-few" systems can be used to stand for systems that restrict trip purposes, the model results in Tables 9 and 10 indicate that the cost differences between restricted and unrestricted systems are quite significant. If a system serves all trip destinations, then the annual costs on average would be 60 percent greater than if it imposed destination restrictions.

D. Fares

Criterion: Fares on the special service must be comparable to the fares for similar trips on the regular bus service.

Cost Impact - Although it is difficult to predict the actual level of fare that would apply under a "comparable" fare criterion, some broad estimates of cost are possible. If, for example, the average-sized systems shown in Table 9 were charging $1.50 per trip and reduced this fare to 56 cents (the 1983 nationwide average bus fare), they might be expected to see a 15 to 38 percent increase in total trips (based upon a price elasticity range of 0.25 to 0.6[9]) and thus roughly the same percentage increases in gross operating costs. This would be the result, not of the final rule's "comparable fares" criterion, but of a requirement for equivalent fares. However, a fare of $1.50 is probably as high as most specialized systems would charge, and these estimates can thus be regarded as maximum cost impacts. For systems already charging a low fare, this criterion would have no impact on cost.

E. Eligibility

Criterion: Recipients of federal transit aid who choose to comply by providing special service are required to provide such service for all handicapped persons who are physically unable to use the recipient's bus service for the general public.

Cost Impact - It should be observed that the treatment of eligibility in the consultant's analysis is very different from the treatment given to this subject in the case study analysis. In the latter case, the effect of reducing the scope of eligibility from the groups actually served by the case study systems to only the group required by the rule was considered. The consultant considered the effect of increasing eligibility for

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[9] See The Urban Institute report, Paratransit: Neglected Options for Urban Mobility, (undated).

special services from the "severely disabled" population of roughly 1.4 million persons (those who are incapable of using transit) to include an additional 6 million persons identified in the Department's survey as "transportation handicapped" (persons whose disabilities make their use of transit more difficult but not impossible). The latter group, targeted by the model, is still somewhat more restricted than the groups actually served in the case study systems which frequently included able-bodied elderly and low-income persons as well as retarded persons. Thus, the findings from these two studies regarding the cost impacts of meeting the eligibility requirement under the rule are not comparable. In the case study analysis, the eligibility adjustment resulted in substantial cost reductions, while in the consultant's analysis, the eligibility adjustment results in substantial cost increases, averaging 61 percent.

V. COMPARISON OF TOTAL ANNUAL PARATRANSIT COSTS, USER-SIDE SUBSIDY TAXI COSTS, AND ALTERNATIVE COST LIMITS IN DIFFERENT SIZED CITIES

The previous section examined the cost implications for transit authority-operated paratransit systems of different sizes to meet each service criterion one at a time. This section combines the criteria in various ways in order to assess the total annual compliance costs associated with alternative levels of specialized paratransit service. The paratransit costs are estimated for systems of different sizes and compared with user-side subsidy (taxi) costs and the alternative cost limits to reveal the financial exposure associated with alternative regulatory approaches.

Table 11 sets forth the model cost estimates for transit authority-operated paratransit and user-side subsidy taxi systems in average-sized cities in four population categories together with the projected cost limits for such systems. The range of costs estimated for five levels of paratransit and user-side subsidy service is based on different assumptions about restricting service criteria and whether the handicapped population eligible for special services would include all "transportation handicapped"--those persons whose physical conditions make it difficult for them to use transit--or only "severely disabled" persons whose physical disabilities prohibit use of regular transit.

TABLE 11
COMPARISON OF GROSS ANNUAL COSTS OF PARATRANSIT AND USER-SIDE SUBSIDY SERVICES AND COST LIMITS IN SYSTEMS SERVING AVERAGE-SIZED CITIES
(In thousands of 1983 dollars)

City Size Category	7.1% Cost Limit	3.0% Cost Limit	Paratransit Service Level	Paratransit Costs from Model	DOT Adjusted Paratransit Costs	User-Side Subsidy Service Level	User-Side Subsidy Costs From Model	DOT Adj. User-Side Subsidy Costs
Less than 250,000 (197 cities; average pop. 118,000)	75	61	a	756	674	a	513	544
			b	462	412	b	170	180
			c	277	247	c	87	92
			d	194	173	d	60	64
			e	120	107			
250-500,000 (35 cities; average pop. 357,000)	184	193	a	1,205	1,090	a	708	750
			b	739	668	b	234	248
			c	435	393	c	120	127
			d	300	271	d	84	89
			e	194	175			
500,000-1 million (22 cities; average pop. 693,000)	506	506	a	1,570	1,420	a	859	910
			b	958	866	b	285	302
			c	570	515	c	146	155
			d	395	357	d	105	111
			e	250	226			
Over 1 million (19 cities, average pop. 1,573,000)	3,456	2,408	a	2,107	2,802	a	1,092	1,158
			b	1,290	1,716	b	360	382
			c	764	1,016	c	185	196
			d	535	712	d	130	138
			e	335	446			

A list of detailed notes explaining the service level and cost assumptions are found on pages IV-11 and IV-12.

Explanatory Notes for Table 11

- The cost estimates for cities of population of one million or more do not include data from New York, Los Angeles, Chicago, Philadelphia, San Francisco, and Boston.

- The cost limit estimates are based on 7.1% of all UMTA 1983 transit assistance received, and 3.0% of recipients' operating expenses for the year July 1981-June 1982. These data were compiled from the UMTA Section 15 reporting system for 404 transit systems grouped by urban area size and reflect average cost limits across all systems in each population group.

- The paratransit costs may be interpreted as representing the cost per system in the average-sized city in each population category, rather than the cost per city. All costs in column 5 are based on a cost per vehicle hour of $23.00, the national average in the data set of 53 publicly operated paratransit systems.

- For user-side subsidy systems, the average total taxi cost per trip (including the user's portion of the fare) is $5.60, which is derived from DOT-sponsored studies of taxi fares in several cities, plus a 20 percent administrative cost add on.

The DOT adjustments in columns 6 and 9 reflect the following factors:

- The paratransit costs from the model have been adjusted in column 6 to reflect various costs per vehicle hour rather than the $23.00 per hour average used in the model estimates. For cities over one million, the average cost per vehicle hour is $30.50. For the other three population categories, the hourly vehicle costs average between $20.50 and $20.80.

- User-side subsidy taxi costs have been adjusted in column 9, because the model based the user-side costs on paratransit data which include the trips of approximately 7 percent of wheelchair persons who cannot use taxis. The national average taxi cost is estimated as $5.60 per trip, while the average per trip cost by lift-equipped vans is estimated at $10.00. By taxi, 100,000 trips would cost $560,000, but 7,000 of those trips need a lift-equipped van, increasing total cost by six percent to $591,000. Thus, the model's user-side subsidy taxi cost estimates have been increased by six percent to include supplementary lift service for wheelchair persons who cannot use taxis.

- The service level letter codes (a) through (e) reflect the following operating characteristics of the systems:

(a) Eligibility includes all "transportation handicapped" persons who are limited to some degree in their use of public transportation. This group is estimated by DOT to number 7.4 million persons nationwide. The system exceeds the eligibility requirement of the final rule. The system is assumed to meet all of the other service criteria, except that reasonable response time means same day service which exceeds the requirement of the final rule.

(b) Eligibility is restricted to "severely disabled" persons (i.e., those who cannot physically use regular transit because of disabilities). The size of this group is estimated at 1.4 million persons nationwide. Mentally retarded persons are not in this group unless they also suffer other handicaps that physically prevent them from using regular buses. The system is assumed to meet the eligibility requirement and all of the other service criteria, except that it assumes response time means same-day service, which exceeds the requirement of the final rule.

(c) Same as (b), but a 24-hour advance response time is permitted, which fully meets the requirement of the final rule.

(d) Same as (c), but the system need not serve the same geographic area as the regular transit service. (This is roughly interpreted to mean that the special service could serve the central city but not the suburbs, or alternatively, service might be restricted to neighborhood zones.)

(e) Same as (d), but trip destinations would be restricted for paratransit systems. The cost impacts of such restrictions for user-side subsidy services were not calculated. (The consultant's data did not include direct information on trip purpose restrictions or priorities. The consultant's study uses destination restrictions--such as "many-to-few" systems that serve unlimited origins but deliver users only to selected destinations like employment centers, medical centers, universities, and major shopping areas--as a surrogate for trip purpose restrictions. This treatment of the criterion may be of limited utility, since systems which restrict trip purposes do not necessarily restrict dispersion of destinations within the service area.)

The (c) level of service is the closest approximation of that required by the final rule.

The average paratransit cost per vehicle hour of $23.00 assumed in the model estimates for all city size groups has been adjusted by DOT in column 6 of the table to reflect the fact that cost per vehicle hour of paratransit services varies substantially with city size. Also, the model's user-side subsidy cost estimates have been increased by six percent to include supplementary lift van service for persons who cannot use taxis (see column 9 of the table).

The estimates shown in Table 11 suggest that transit systems in cities over one million could meet all service criteria and the eligibility requirement at service level (c) by providing paratransit or user-side subsidy taxi services at costs that are well below the 7.1 and 3.0 percent cost limits.

For systems serving cities of 500,000 to one million population, user-side subsidy service, which fully meets the service criteria and eligibility requirement at service level (c) could be provided at costs that are well below both cost limits. Publicly operated paratransit service could also be provided within both cost limits, if service is restricted to a smaller geographic area than that covered by the fixed-route system (service level (d)).

For cities of 250,000 to 500,000, it appears that transit systems could fully comply with the criteria at costs within both cost limits by offering user-side service at service level (c). Also, paratransit service meeting the criteria could probably be provided within the cost limit at service level (e) in cities of about 350,000 or more population.

For small cities (250,000 or less), most transit systems probably could provide user-side subsidy service within both cost limits, if service areas are restricted (service level (d)). However, in order for small systems to provide publicly operated paratransit service, much longer response times, together with service area and trip purpose restrictions would be needed to bring costs under the cost limits.

This information makes it clear that smaller systems would have the most difficulty in meeting the eligibility and service criteria requirements for special service at costs below the rule's limit on required expenditures. However, according to the model estimates, paratransit meeting all of the service criteria could be provided in large urban areas (over one million persons) where approximately 44 percent of the nation's 7.4 million "transportation handicapped" population reside. Assuming that "severely disabled" residents of large cities who cannot use regular transit are distributed in a similar manner as all "transportation handicapped" residents, then approximately 44 percent of the eligible user population targeted by the Department as potentially entitled to special services might be served by paratransit systems in large cities in full compliance with the service criteria while not exceeding the limits on required expenditures. Given the

relationships between city size, service, and cost, therefore, it is likely that the final rule would produce the most noticeable improvements in service in large cities.

The model estimates for user-side subsidy service present a somewhat different picture of the impacts on localities of responding to the final rule. Based on the model results, the potential costs of operating user-side subsidy service (at non-union costs) are substantially below the paratransit costs. Therefore, it appears that systems in all but the smallest urban areas (under 200,000) should be able to provide user-side subsidy service which fully meets the service criteria within the cost limits.

In terms of the eligible user population to be served, user-side subsidy service which fully complies with the rule could potentially be supplied in urban areas of over 200,000 persons where approximately 65 percent of the nation's 7.4 million "transportation handicapped" population resides. Assuming that "severely disabled" residents are distributed similarly to the "transportation handicapped" population in these areas, then potentially 65 percent of the eligible user population targeted to receive special services could be served by user-side subsidy systems meeting all service criteria while not exceeding the cost limits.

VI. SOME FACTORS AFFECTING COST

A. Type of Operation: Paratransit Versus User-Side Subsidy

The conclusions presented above apply only to transit-operated paratransit systems whose costs, which ranged from $20.50 to $30.00 per vehicle-hour in 1983, tend to reflect union-level wage rates. Cost per trip ranged from $6.83 to $15.00. A number of transit systems, however, which operate their own paratransit vehicles, also contract out at least part of the service through user-side subsidy taxi operations. The average taxi cost per trip of $5.60 (including a total fare charge) estimated for user-side subsidy service is substantially less than the average paratransit cost per trip. If more transit systems opted to supply a combination of publicly operated paratransit and user-side subsidy service, this should enable many, though not all, systems to meet the service criteria requirements within the cost limits.

B. Treatment of Revenue from Fares

The rule would "credit" recipients (for purposes of the cost limit) with the gross costs they incur to provide specialized paratransit services, regardless of the revenue they get back from fares. Some commenters suggested that transit systems be credited only with net costs (gross costs minus farebox revenue) and that doing so would help bring their financial exposure closer to the cost limits.

The consultant's analysis of the net cost of paratransit systems suggests that, even on a net cost basis, cities of less than about 700,000 persons would have difficulty coming in under the cost limits.[10]

For user-side subsidy programs, however, the treatment of gross program costs would vary among recipients, dependent on differences in the fare subsidy formulas and the subsidy mechanisms adopted. The costs of user-side subsidy programs presented in Table 11 assume that transit operators would subsidize 100 percent of the fares charged to eligible users. However, according to an UMTA survey of user-side subsidy programs, a majority of operators subsidize only 50 percent of the total fare charge by providing users with scrip or tickets, which they redeem for rides. Users are responsible for paying the balance of their fares in cash. Under the rule, recipients are entitled to claim only the actual program expense supporting user-side subsidy operations. For most recipients, this would include the subsidy payment per trip (total trip cost minus the user fare) plus an administrative expense. Therefore, the potential costs of user-side subsidy services would probably be about 50 percent below those indicated in Table 11. Claiming only the actual program expense for user-side subsidy taxi service would enable virtually all transit systems to comply with the rule for less than the cost limits.

VII. COMPARISON OF THE COSTS OF 50 PERCENT ACCESSIBLE BUS SERVICE AND COST LIMITS

According to the cost projections in Table 12, the annual cost of adding lifts to one-half of the buses in a transit operator's fleet is less than both cost limits in all cities (assuming no fleet expansion). The capital cost of adding a wheelchair lift to an urban transit bus is estimated at $10,000; annual operating and maintenance costs are assumed to be $800.00 annually.[11] Some

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[10] David Lewis report, Op. cit., supra. See estimates in Figure 3 of report.

[11] The National Highway Cooperative Research Program Report, Planning Transportation Services for Handicapped Persons--User's Guide, September 1983. These estimates are drawn from the NCHRP report and reflect the lower end of the observed range, (see p. 17, Tables 19 and 20, and p. 41), which DOT believes to be the more realistic for projection purposes.

TABLE 12
GROSS ANNUAL COSTS FOR 50% AND 100% LIFT-EQUIPPED BUS SYSTEMS
AND COMPARISON TO SPECIAL SERVICE COSTS MEETING THE RULE
(In thousands of 1983 dollars)

City Size Category	7.1% Cost Limit	3.0 Cost Limit	50% Bus Accessibility[1]	100% Bus Accessibility[1]	DOT Adjusted Paratransit Costs[4]	DOT Adjusted User-Side Sub. Costs[4]
Less than 250,000 (197 cities; aver. population 118,000)	75	61	35[2] 66[3]	50[2] 94[3]	247	93
250 - 500,000 (35 cities; average population 357,000)	184	193	160[2] 305[3]	229[2] 436[3]	393	127
500,000 - 1 million (22 cites; average population 693,000)	506	506	306[2] 584[3]	437[2] 834[3]	515	155
Over 1 million (19 cities; aver. population 1,573,000)	3,456	2,408	958[2] 1,830[3]	1,369[2] 2,614[3]	1,016	196

1. The capital cost of a wheelchair lift for a standard transit coach is assumed to be $10,000. The annual operating and maintenance cost is based on $650 per lift for maintenance, and $150 per lift for insurance, promotion and marketing costs.

2. These figures do not include fleet expansion.

3. These figures assume a 3.5 percent fleet expansion; 1.5 percent expansion to restore lost seats and 2.0 percent for more frequent maintenance of lifts.

4. See notes to Table 11 for explanation of cost adjustments.

cost figures shown in Table 12 also illustrate the impact of some fleet expansion to compensate for lost seats and added maintenance down-time.[12]

It also appears that 50 percent accessible bus service would be less expensive for transit systems to operate than paratransit services meeting the service criteria in all cities, without fleet expansion to compensate for lost seats and added maintenance.

However, while 50 percent lift-bus service would cost less than user-side subsidy service in systems serving cities of under about 250,000 population, user-side service would always cost less than lift-bus service in systems serving cities over 250,000.

VIII. COSTS OF 100 PERCENT ACCESSIBLE BUS SERVICE

Table 12 also displays the cost of equipping 100 percent of a transit system's buses with lifts. These costs, without fleet expansion, would generally fall beneath the 7.1 percent and 3.0 percent cost limits.

IX. CONCLUSIONS

Based on the findings from the model analysis, two important points emerge. First, it is proportionately much easier for transit systems in larger cities to provide special service meeting all service criteria of the final rule for less than the cost limits than it is for systems serving small cities. Second, with respect to special services, there appears to be a clear cost incentive for virtually all transit systems to meet the criteria by providing user-side subsidy taxi service. However, this alternative may not be feasible in all localities for institutional reasons, e.g., UMTA Section 13(c) labor requirements may pose a barrier to the use of user-side subsidies in some cities. In such cases, the accessible-bus option would provide an attractive cost alternative for meeting the regulations, although it is likely to provide substantially fewer trips to handicapped persons than user-side subsidy service, and thus represents a less cost-effective approach to compliance.

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[12] Assumes 1.5 percent expansion to restore lost seats and 2.0 percent for more frequent maintenance. Although some analysts argue for the inclusion of such costs, the NCHRP study found that because the frequency of lift use has been low in most lift-bus systems, there has been little impact on fleet expansion and the necessity of repairing lifts has been low also. Therefore, the 3.5 percent model estimate is generous since there is little evidence to support the supposition that these cost items deserve attention. The Department believes the "no fleet expansion" figures are more realistic estimates of accessible bus system costs.

CHAPTER V

COMPARISON OF THE ANNUAL COSTS OF ACCESSIBLE BUS AND SPECIALIZED TRANSPORTATION SERVICES IN CASE STUDY SYSTEMS AND ESTIMATES FROM THE NATIONAL MODEL

This Chapter compares the results of the case study analysis presented in Chapter III with the model analysis in Chapter IV. The first section of this chapter compares the incremental cost impacts of meeting each of the service criteria in the case study systems with the national average cost impacts estimated by the paratransit model. The second section compares the cost limits and the annual costs of operating accessible bus or specialized services in the case study systems and in transit systems serving average-sized cities nationwide to determine the total financial implications associated with the alternative service options. Section three examines modifications in the service criteria which might enable more systems to meet the regulations, and assesses the impacts of setting the 7.1 and 3.0 percent cost limits at alternative levels.

I. COST IMPACTS OF MEETING THE INDIVIDUAL SERVICE CRITERIA

The results of the case study and model analyses projecting the percentage cost effects of meeting the various service criteria are presented in Table 13.[1] The case study estimates represent the percentage cost increases over current total program expenses of removing service restrictions one at a time.

As noted in the previous chapter, the model estimates represent the national average impacts for a very restricted "minimal" paratransit system (one in which eligibility, geographic area and trip destinations are restricted and 24-hour advance reservations apply) to meet each service criterion separately.

Comparison of the estimates from the case studies and those from the model analysis indicate significant differences in the cost impacts measured for the individual service criterion. The model estimates are consistently higher than the impacts estimated in the various case study systems. Such variation is not surprising, since the model analysis is founded on an attempt to depict the potential impacts of the rule on a very restricted system in which

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[1] This comparison does not include the cost of meeting the days and hours of service criterion, since the model analysis did not take account of this requirement.

most service criteria are not met. The case study systems already fully or partially meet many of the service requirements, and thus, the impacts measured in the cases would not be expected to be as great as in the model. The results are compared below.

TABLE 13
INCREMENTAL COST IMPACTS OF EACH SERVICE CRITERION
FROM CASE STUDY RESULTS AND AS ESTIMATED BY THE MODEL 1/

Change in Service Level	Percentage Impact on Annual Cost: Case Study Estimates 2/	Model Estimates 3/
Remove 24 Hour Advance Reservation	+33 to +50	+35 to +109
Remove Geographic Area Restriction	-7	+26 to +63
Remove Trip Destination Restrictions	+15 4/	+57 to +82
Eliminate Subscription Service	+30 to +50	+39

1/ The following service attributes are assumed in the model for a hypothetical "minimal" system:
- Eligibility restricted to severely disabled persons:
- Advance reservation of 24 hours or more required;
- Destinations and trip purposes restricted;
- Geographic range of service restricted;
- Subscription service required for recurring journeys.

2/ The case study estimates reflect the range of percentage effects over current total program expenses of removing each service restriction separately. Since the case systems already provide levels of service which satisfy many of the criteria, at most, five, and sometimes only one, system(s) are affected per criterion.

3/ The cost impacts of removing service restrictions in the "minimal" system have been averaged across all city sizes, and reflect the range between one standard deviation below and above the mean average cost for all cities.

4/ This estimate is based on only one case study system - Cleveland.

A. Response Time

Response times for the paratransit systems in the model's sample vary widely since reservations are required from 2 hours to one week in advance of scheduled trip times. Based on the model results, paratransit systems which provide response times of 24 hours or more could experience annual cost increases averaging nearly 70 percent (over the base cost assumed for the "minimal" system) if immediate response service were required.

All of the case study systems require prior day reservations up to a maximum of 24 hours and could comply with the rule which requires response times within 24 hours of trip requests. However, in comparison to the model results, the case studies suggest that if immediate, rather than 24-hour, response time would be required, this could result in cost increases ranging from one-third to one-half times above current program costs.

B. Geographic Area Coverage

According to the model estimates, systems which operate in a restricted portion of the urbanized area could realize annual cost increases averaging about 40 percent (over the base cost assumed for the "minimal" system) by expanding paratransit service to the entire urbanized area. The model simulates the average restriction across a range of systems, each of which applies restrictions in a somewhat different manner. Thus, it is impossible to determine how severe the average restriction is, although the consultant roughly interprets that restricted systems in his database are providing full service only to downtown areas or neighborhood zones. These restrictions represent severe limitations on service compared to the area coverage provided in case study paratransit systems.

Findings from the case studies indicated that all of the special service systems provide geographic area coverage equivalent to or exceeding the fixed-route area coverage, which satisfies the requirement of the rule. However, the case study system of Brockton could realize an approximate 7 percent reduction in its current program costs if it eliminated paratransit trips by handicapped patrons to points outside the fixed-route service area.

C. Trip Purpose Requirement

The difference between the case study and model estimates for removing trip purpose restrictions is due to the fact that the model accounts for the impacts of trip purpose restrictions indirectly by limiting destinations to such sites as bus terminals and hospitals. Therefore, the impacts measured by the model in Table 13 are only marginally useful in determining the effect of

this criterion, since systems which restrict trip purposes typically do not restrict destinations within the service area. Nevertheless, based on the model results, the removal of such restrictions could increase annual costs by an average of nearly 60 percent.

The case study estimate of 15 percent for removal of trip purpose restrictions reflects the increase in Cleveland's current program cost of expanding service from work, school, and medical trips to all trip purposes. Since Cleveland already partially meets this criterion, the 15 percent estimate may be low compared to what other systems with more restrictive practices might encounter to expand service to all trip purposes. Therefore, the impacts estimated in the model and in Cleveland might represent the high and low end of the range of costs of meeting this criterion.

The issue of subscription service (which entitles users to standing reservations for recurring trip purposes) was raised by some handicapped groups who argued that it represents a form of trip prioritization and should be eliminated.

Our analysis of subscription service operations in the various case studies indicates that all systems can meet existing demand for both subscription trips and demand-responsive dial-a-ride trips without imposing trip priorities. Moreover, subscription service was found to be the most cost-effective form of service provided by case systems, and if its elimination would be required, this could increase current program costs by 30 to 50 percent and cause substantial disruptions in existing forms of service.

Based on the model estimate, the removal of subscription service could increase annual paratransit costs by approximately 40 percent, which falls within the range of cost impacts calculated for the case study systems. It was for these reasons that we specified in the final rule that this criterion is not intended to prevent subscription service.

D. Eligibility

It is important to reiterate that the treatment of eligibility in the consultant's analysis is very different from the treatment given to this subject in the case study analysis. In the latter case, the effect of reducing the scope of eligibility from the groups actually served by the case study systems to only the group required by the rule (those with physical disabilities who cannot use the regular bus system) was considered. The consultant considered the effect of increasing eligibility for special services from the "severely disabled" population of roughly 1.4 million persons targeted to receive special services to include an

additional 6 million persons identified in the Department's survey as "transportation handicapped" (persons whose disabilities make their use of transit more difficult). The latter group, targeted by the model, is still somewhat more restricted than the groups actually served in the case study systems, which frequently included able-bodied elderly, low-income, and mentally retarded persons. Thus, the findings from these two studies regarding the cost impacts of meeting the eligibility requirement of the final rule are not comparable. In the case study analysis, the eligibility adjustment resulted in substantial cost reductions, while in the consultant's analysis, the eligibility adjustment results in substantial cost increases, averaging 61 percent.

E. Summary

Results from both analyses indicate that the cost impacts vary dramatically with shifts in eligibility standards and 24-hour advance reservation requirements. For example, in both the national model and in the case systems of Cleveland and Brockton, the projected costs of paratransit with eligibility restricted to physically handicapped persons and with short response times are roughly equivalent to the costs of extending eligibility to a broad population of eligible users and providing response times within 24 hours of trip requests. In other words, the savings gained by permitting advance reservations allow the serving of a larger ridership group. Nationally, the combined costs of extended eligibility and reduced response times are roughly equal to the projected costs of meeting the other service criteria. The Department chose to lessen the costs of the final rule by allowing 24-hour response times and by limiting eligibility to persons physically unable to use regular transit.

The differences in the cost impacts estimated in the two analyses illustrate the degree of uncertainty about the actual costs of meeting the service criteria. In view of that uncertainty, the costs of full service criteria compliance are considered to fall within the range of estimates derived from the two analyses, but an attempt to settle on figures within those ranges would simply be a guess. This is another reason why a cost limit is useful to prevent undue financial burdens on individual systems, the circumstances of which can be expected to vary widely.

II. COMPARISON OF THE TOTAL ANNUAL COSTS AND COST LIMITS FOR SPECIAL SERVICES AND ACCESSIBLE BUS SYSTEMS IN CASE STUDY SYSTEMS AND AVERAGE SYSTEMS NATIONWIDE

This section compares the adjusted costs of accessible services in the case study systems to the model estimates to determine whether observed differences in costs can be explained in light of differences in the analytical approaches. Table 14 displays the

adjusted model cost estimates of meeting the service criteria for accessible lift-bus, paratransit, and user-side subsidy service. The table also sets forth the cost estimates for the seven case study systems, as well as the projected cost limits for both the model and case study systems. (Note that cost adjustments referred to in the table are explained in Chapters III and IV.)

Inspection of the table reveals wide variation between the model estimates and figures from the case study systems. Such variation should not be surprising, since the model is founded on an attempt to depict "average" systems. The case study figures come from transit authority estimates in real-world settings.

It may be useful to briefly note some of the ways in which the case study systems diverge from the systems posited by the model. For one thing, all the case study special service systems provide a higher level of service with respect to response time requirements than is presumed for the model. In case study systems, response time of less than 24 hours is usually the case. The model estimates are based on a more restricted service in which advance notice of 24 hours or more is allowed. Therefore, the cost impacts of providing shorter response times in the case systems would be lower than those estimated by the model.

The case study systems also appear to be more generous in their eligibility requirements than are the systems in model. Further, even where a case study city, e.g., Pittsburgh, has an eligibility standard that is nominally similar to the model's, the actual administration of such a standard is likely to be more lenient in practice than in theory. It is evident that especially for systems in large cities the model may have a tendency to underestimate the cost of paratransit services, due to forecasting too large a demand reduction associated with the imposition of advance reservations and eligibility restrictions.

The wide variation in the model and case study cost estimates for 50 percent lift-bus service in large cities reflects differences in the service assumptions used in these two studies. The model costs are based on the assumption that only standard-sized buses would be equipped with lifts. The hypothetical cost estimate for 50 percent lift-bus service in Seattle assumes a mixed fleet composition including articulated buses with a higher unit cost per lift. Also, the annual maintenance/operating cost assumed in the model is $800.00 per bus, compared to $910.00 per bus in the Seattle case. Despite these variations, both the model and case study estimates reflect costs which are in line with those of the more successful lift-bus operations.

The whole range of estimates generated from the model and from the case study systems should be looked at as a reasonable range of the potential costs of complying with the 504 regulations. Collectively it appears that systems in virtually all cities should

TABLE 14
COMPARISON OF PROJECTED ANNUAL COSTS OF ACCESSIBLE TRANSPORTATION ALTERNATIVES
FULLY MEETING THE RULE IN CASE STUDY AND MODEL SYSTEMS
(in thousands of 1983 dollars)

Urbanized Area Populations Projected by Model	Cost Limits Projected By Model 7.1%	3.0%	50% Lift-Bus Costs (Model)	Paratransit Costs (Model)1/	User-Side Subsidy Costs (Model)1/	Case Studies Adjusted Costs	Case Study Cost Limits 7.1%	3.0%
Less Than 250,000	75	61	35	247	92	245 Brockton paratransit	142	146
2550,000-500,000	184	163	160	393	127	103 Hampton paratransit	180	163
500,000 One Million	506	506	306	515	155	242 Akron paratransit/ lift-bus service	296	250
Over One Million	3,456	2,408	958	1,016	196	555 Kansas City user-side/ lift-bus service	736	816
						3,100 Cleveland paratransit	4,300	3,288
						2,700 Pittsburgh paratransit/ user-side subsidy	7,900	3,700
						1,200		

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be able to comply with the regulations for less than the proposed cost limits by providing 50 percent lift-bus systems. User-side subsidy service appears to represent an even more attractive cost option for most systems to comply with the rule at relatively low cost and high cost-effectiveness.

Both the model and case study results project problems for systems in small cities to provide paratransit meeting the criteria at costs within the cost limits. In larger cities, the model projects paratransit costs which are well below both cost limits, while the case study results project paratransit costs closer to the limits.

III. COMPARISON OF THE 7.1 AND 3.0 PERCENT COST LIMITS AND ALTERNATIVE COST LIMITS

A. Background

The NPRM proposed cost limits of 7.1 percent and 3.0 percent based on the Milwaukee user-side subsidy program that satisfied most of the service criteria. The assumption was that Milwaukee could run its system at 7.1 percent of its federal subsidy and 3.0 percent of its operating budget without incurring any undue financial burdens. Since these standards yielded virtually identical amounts when applied to nationwide total transit grant assistance and total transit operating expenses, it was assumed that user-side subsidy service could be instituted in most urban areas nationwide at similar program cost within both cost limits.

However, the NPRM recognized that Milwaukee's cost and, hence, the cost limits, might not be representative of those of other transit authorities since local responses to meeting the service criteria could be expected to vary from community to community. Indeed, this has proven to be the situation in the case study systems and in the model analysis of 53 paratransit systems. In both analyses, the varied approaches to special service provision have been found to produce significant differences in total program costs, and mixed results regarding the abilities of various sized systems to meet the service criteria and cost limits.

All of the conclusions thus far have hinged on meeting the 7.1 and 3.0 percent cost limits, based on historical levels of federal transit aid and total operating expenses. However, levels of federal transit assistance have shifted significantly over the last few years. Beginning in FY 1983, UMTA replaced the section 5 formula grant program with a new section 9 program which capped operating funds at FY 1982 levels, and increased bus capital. Both the section 9 allocation formula and the section 3 capital formula have been changed resulting in significant funding shifts among urbanized areas. The net effect of these changes has been a decline in federal transit aid in real terms.

B. Options

Table 15 displays the impacts of setting the 7.1 percent spending limit given at FY 1984 levels of federal transit aid. It also shows the impacts of setting the cost limits off of alternative funding bases and percentage levels based on recommendations submitted to the docket. The advantages and disadvantages of each option are described below.

Alternative 1: Retain 7.1 Percent Federal Assistance Cost Limit

This approach would involve a rule structured like the NPRM; all service criteria would have to be met to the extent possible within the proposed 7.1 percent cost limit based on a three year average of federal transit aid. Recipients would not have to spend more than the maximum expenditure generated by the cost limit, even if they could not meet all of the criteria.

Comparison of the projected case system expenditure levels in columns three and four of Table 15 indicates that calculating the cost limit on the basis of 7.1 percent of FY 1984 federal transit aid would enable five of the seven case systems to meet the criteria and cover their program costs, whereas six systems were able to do so based on a three year average of FY 1981-83 federal aid. The most significant change occurs in Cleveland, whose maximum expenditure level based on 7.1 percent of FY 1984 federal aid would drop to about 80 percent of the amount estimated at historical levels. The decline in Cleveland's expenditure level is due to a substantial reduction in section 3 capital grants between FY 1981 and 1984. At current levels of federal aid, Cleveland could no longer meet the paratransit service criteria within the 7.1 percent cost limit.

Alternative 2: Set Cost Limit to Match Paratransit Costs

In order to generate sufficient revenues for all of the case study special service systems to meet the service criteria and cover their costs, a cost limit based on federal assistance would have to be set at approximately 13.5 percent. This estimate is low compared to the model analysis which estimated that a nationwide federal assistance cap would need to be set at approximately 19 percent in order to cover the paratransit cost in all cities. If small systems like the case study system of Brockton (serving cities under 250,000) are excluded from meeting the service criteria, a cost limit of approximately 7.5 percent would probably be sufficient. However, setting the cost limit to cover paratransit costs is unrealistic, since most transit systems can meet the service criteria by providing lift-bus or user-side subsidy services for less than either cost limit.

Establish Alternative Federal Aid Cost Limits Based on NPRM Comments

The cost limit proposals in the NPRM were the source of a substantial number of comments to the docket. In general, handicapped commenters opposed any form of limit on expenditure levels, while most transit authorities found it equitable to relate the federal 504 requirement to the federal transit funds recipients received. A majority of transit authorities favored the annualization of section 3 capital funds, or the removal of section 3 rail capital from the cost limit arguing (1) that their inclusion provides an unstable base for calculating the spending limit, and (2) that counting section 3 grants which support accessible rail projects would constitute double counting. Also, APTA recommended a 2.0 percent standard based on section 9 operating assistance only. The impacts of these alternative options are displayed in columns five through seven of Table 15 and discussed below.

Alternative 3: Base 7.1 Percent Cost Limit on Section 9 Apportionments and Annualize Section 3 Capital Funds

The expenditure levels calculated for this alternative are shown in column five of Table 15. The annualization of Section 3 capital funds produces changes in the spending levels of the large rail systems of Cleveland and Pittsburgh. The spending amount estimated for Cleveland would generate only about 90 percent of the revenue necessary to meet the service criteria. The spending level calculated for Pittsburgh, while significantly reduced, would still be adequate to meet the service criteria and cover it's cost.

Alternative 4: Base Cost Limit on 7.1 Percent of Section 9 Apportionments and Section 3 Capital (excluding Rail Grants)

Basing the cost limit on 7.1 percent of section 9 apportionments and section 3 bus capital would represent a less controversial and more stable base than including section 3 rail grants. However, this adjustment also produces significant changes in the spending levels of the large rail systems of Cleveland and Pittsburgh. With rail capital excluded, neither system would be able to meet the criteria within the cost limits. A federal assistance cost limit would need to be set at about 10.5 percent, if rail capital funds are excluded from the base, in order to generate revenue equal to 7.1 percent of total transit aid in Cleveland. This alternative, of course, has no effect in non-rail cities.

TABLE 15
COMPARISON OF 7.1 PERCENT FEDERAL ASSISTANCE COST LIMIT AT CURRENT AND HISTORICAL EXPENDITURE LEVELS AND ALTERNATIVE LIMITS*
(in millions of dollars)

Case Study System	Adjusted Total Program Cost	Alternative Cost limits: 7.1% Sec. 5, 9A & 3 (FY 1981-83)	7.1% Sec. 9 & 3 (FY 1984)	7.1% Sec. 9&3 Rail Capital Annualized (FY 1984)**	7.1% Sec. 9&3 Rail Capital Eliminated (FY 1984)	2% of Sec. 9 (FY 1984)
Cleveland (1982)	3.1	4.3	2.9	2.2	2.1	.6
Pittsburgh	2.7	7.9	8.0	3.1	2.4	.7
Seattle 53% Lift-Bus System (1983)	0.9	2.1	2.5	2.5	2.5	.7
Hypothetical Lift-Bus system (1983)	1.2	2.1	2.5	2.5	2.5	.7
		(In Thousands of Dollars)				
Kansas City Combined Regional System	555	736	667	724	724	188
50% Lift-Bus	395	736	667	724	724	188
Akron (1983)	242	296	312	301	301	088
Hampton/N.N.	103	181	206	180	180	058
Brockton	245	142	129	135	135	036

* Program costs are for 1983 transit fiscal year beginning July 1982 and ending June 1983, unless otherwise noted. The cost limit projections in Column 2 are based on a three year average of federal assistance; those in Columns 3-6 are based on federal aid for the fiscal year covering October 1983 to September 1984.

** Rail capital is annualized at 10 percent discount rate over 20 years, with a capital cost recovery

Alternative 5: Base Cost Limit on 2.0 Percent of Section 9 Funds

Setting the cost limit at 2.0 percent of UMTA section 9 apportionments would represent the most congenial approach to the transit industry, based on the recommendation of the American Public Transit Association (APTA). However, this alternative produces spending levels which are inadequate for all case study systems to provide reasonable levels of service in compliance with the criteria. In order for the case cities to generate revenues sufficient to meet all service criteria, a cost limit would have had to be set at approximately 12 percent of section 9 apportionments. The inadequacy of the 2.0 percent of the section 9 alternative is not surprising, since it appears to have been based simply on the nationwide minimum expenditure generated under the 1981 interim final rule, which recommended expenditures well below the actual expenditures of many transit authorities.

Base Cost Limit on Recipients' Total Operating Expenses

Most handicapped commenters who expressed a preference on the cost limit approach favored a limit on total operating expenses. They believed that this would result in a more stable funding level than a limit based on federal appropriations, and considered it more equitable to relate expenditures for handicapped services as a percentage of the provider's overall expenses for the general public.

Most transit authorities considered it equitable to relate the Section 504 requirement to federal transit assistance. However, many authorities' comments said they would accept a cost limit based on operating expenses if it yielded expenditure levels similar to those obtained under the federal assistance limit. A frequent transit authority comment on the operating expense cost limit was that the E & H program cost should be excluded from the base for purposes of estimating the annual expenditure level. APTA favored an operating expense limit set at a level roughly comparable to the 2.0 percent cost limit based on section 9 funds. Table 16 shows the impacts of retaining the 3.0 percent cost limit at current operating expense levels, and alternative bases for establishing the cost limit.

Alternative 6: Retain 3.0 Percent Operating Expenses Cost Limit

Calculating the expenditure level on the basis of 3.0 percent of the case systems' 1983 total operating costs instead of historical levels does not appreciably change the abilities of the case systems to meet the service criteria.

TABLE 16
COMPARISON OF ALTERNATIVE OPERATING EXPENSE COST LIMITS*
(in millions of dollars)

Case Study System	Adjusted Total Program Costs	3.0% Total Operating Costs (FY 1981-83)	3.0% Total Operating Costs (FY 1983)	3.0% Operating Cost Minus Handicapped Program Cost (FY 1983)	1.0% Total Operating Costs (FY 1983)
Cleveland (1982)	3.1	3.3	3.2	3.1	1.1
Pittsburgh	2.7	3.7	4.1	4.0	1.4
Seattle Lift/Bus	0.9	3.1	3.2	3.2	1.1
Seattle Hypothetical Lift/Bus Case (1983)	1.2	3.1	3.2	3.2	1.1
		(In Thousands of Dollars)			
Kansas City Regional Combined System	555	816	783	765	261
Kansas City 50% Lift-Bus	395	816	783	765	261
Akron (1983)	242	250	247	240	082
Hampton/ Newport News	103	163	162	160	054
Brockton	245	145	150	143	050

* Program costs are for fiscal year beginning July 1982 and ending June 1983 unless otherwise noted. The cost limit projections in Column 2 are based on a three year average of total operating costs; all others are based on 1983 costs only.

Alternative 7: Set Cost Limit at 3.0 Percent of Operating Expenses Excluding Handicapped Program Costs

This approach produces expenditure levels only slightly lower than those calculated for Alternative 6. In general, it makes little difference whether the case systems calculate their cost limit levels off of 3.0 percent of the total operating costs or with the costs of handicapped services subtracted out.

Alternative 8: Set Cost Limit at 1.0 Percent of Total Operating Expenses

This approach would satisfy APTA's proposal that if the cost limit is based on total operating expenses, it should be set at a level which would yield expenditures roughly comparable to those which would be generated by a federal assistance cap based on 2.0 percent of section 9 apportionments. The revenues generated by a 1.0 percent cost limit in all but the largest systems are roughly comparable to the revenues produced by a 2.0 percent cost limit on section 9 assistance. However, a 1.0 percent limit would not generate sufficient funds to cover even the net program costs in most case systems.

Alternative 9: No Cost Limit

This approach was favored by most handicapped commenters. If no cost limit is imposed, transit authorities might be expected to spend up to whatever it takes to meet the service criteria. This concept could be difficult to defend as imposing no undue financial burden. Interpretations of what constitutes acceptable service criteria and spending levels might be expected to vary from one locality to another with the possible result that both the service criteria and expenditure levels could be compromised drastically. In order to keep costs down, under this approach, the Department would probably have had to scale down the service criteria considerably (e.g., tighter eligibility criteria, no geographic area criterion).

IV. CONCLUSIONS

The major reason for proposing a cost limit was to establish a predictable limit on the costs transit authorities would have to incur to comply with the rule. Both the idea of a limit (to keep regulatory costs to a reasonable level) and that of predictability (to facilitate planning and budgeting) are important reasons for having a cost limit.

According to the case study data, the 7.1 and 3.0 percent cost limits yield roughly equivalent expenditure amounts in all but the largest systems where the 3.0 percent cost limit produces the larger amount. Conversely, the annual cost limit levels

Based on the Preliminary Regulatory Impact Analysis published by the Department in May 1983, 7.1 percent of FY 1981 federal assistance funds and 3.0 percent of UMTA recipients' total operating budgets produced national maximum expenditure levels of $243 million and $245 million. In comparison, basing a cost limit on 7.1 percent of FY 1983 federal assistance and 3.0 percent of calendar year 1983 total transit operating expenses would result in maximum annual expenditure levels of $249 million[2] and $252 million.[3] Thus, on a national basis, the cost limits appear to yield roughly equivalent expenditure levels as well.

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[2] FY 1983 Federal program funds (Section 5, 9A and 3) of approximately $3.5 billion X 7.1% = $249 million. Federal fiscal year covers October 1982 to September 1983.

[3] 1983 total operating expenses reported by UMTA recipients under Section 15 reporting system of $8.4 billion X 3.0% = $252 million. Section 15 data cover the calendar year January-December 1983.

CHAPTER VI

NATIONAL LONG-TERM COSTS AND COST-EFFECTIVENESS OF THE REGULATORY OPTIONS

In conjunction with its deliberations on this rulemaking, the Department has conducted two independent analyses to examine the potential national costs of implementing the proposed regulations. The first of these analyses was contained in the Preliminary Regulatory Impact Analysis (PRIA) which accompanied the NPRM. A second, more detailed study was initiated to address comments on the NPRM and update the PRIA projections of the nationwide cost burden resulting from the implementation of alternative accessible services permitted under the rule. This second study was based on a mathematical model developed by a consultant; part of the study described in previous chapters.

The Department's Transportation Systems Center (TSC) compared the estimates derived under the two analyses, and concluded that the consultant's study presents a more reasonable and accurate forecast of the likely national cost burden to be incurred under the final regulations. (Appendix C contains the detailed analysis provided by TSC.)

This Chapter presents the cost projections from the consultant's study. These results replace the cost estimates contained in the PRIA, and reflect the Department's best estimate of the national costs associated with the final rule. The first section evaluates total cost for the various regulatory options; the second section estimates cost per trip as a measure of effectiveness and subjects the estimates to sensitivity analysis.

I. NATIONAL COSTS

This Section presents estimated national costs of paratransit and accessible bus systems in undiscounted 1983 dollars and in terms of their present value over the next 30 years (1983-2012). A discount rate of 10 percent per annum (in constant dollars) has been applied in calculating the present values. The 10 percent discount rate is that recommended by the Office of Management and Budget for federal investments. The estimates assume that paratransit systems would build up to full capacity over six years (six years is the assumed life of a paratransit van). Fixed-route bus costs are assumed to build up over 12 years for a 100 percent lift-equipped fleet--12 years is the average life of a bus; and over six years for 50 percent lift-equipped bus fleets.

TABLE 17

NATIONAL ANNUAL COSTS OF PARATRANSIT AND ACCESSIBLE BUS SYSTEMS--STEADY STATE BUILD-UP
(In Undiscounted 1983 Dollars)

Paratransit (with eligibility restricted to "severely disabled" persons and 24-hour advance reservation)	$106 million (after 6 year build-up)
50% Lift-Bus[1]	$63 million (after 6 year build-up)
100% Lift-Bus	$90 million (after 12 year build-up)

The national costs are displayed in Table 17 and Figure 2 for three options:

- Paratransit under two interpretations of "reasonable" response time;
- 50 percent lift-equipped bus fleet assuming a six-year build-up to full lift-equippage; and
- 50 percent lift-equipped bus fleet assuming a twelve-year build-up to full lift-equippage.

The costs are displayed for all cities including the six largest cities of New York, Los Angeles, Chicago, Philadelphia, San Francisco, and Boston, and are presented as though all recipients use either one approach or the other to comply with the rule. It is important to note, however, that the final rule does not specify a percentage of accessible buses that a recipient must provide to meet the service criteria under the rule. We believe that it is probable that the consultant's cost estimates for 50 percent lift-equippage represent a reasonable upper range of recipients' aggregate maximum cost exposure under the final rule for the bus option.

Figure 2 indicates that the estimated present value of total paratransit costs over the next 30 years ranges from $1 billion to $1.7 billion, depending upon the interpretation given to

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[1] 50% lift-bus alternative assumes 70% of 100% lift-bus cost based on the assumption that a 50% lift-bus system captures 70% of the trips generated by a 100% lift-bus system.